

Lake County – Outdoor Wireless Assessment

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For:

Lake County

Prepared for:

**Lake County Board of County
Commissioners**



Prepared by:

Presidio Networked Solutions
5337 Millenia Lakes Blvd., Suite 300
Orlando, FL 32839



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1.0 ABOUT THIS DOCUMENT

1.1 Document Objective

The objective of this document is to provide the results of the wireless survey conducted at remote fire stations and radio towers throughout Lake County. This document will provide the results of the wireless surveys, along with the details for mounting options and heights for each remote and tower site surveyed.

1.2 Document History

Table 2.1 Revision History

Version No.	Issue Date	Status	Reason for Change
1.0	011/2/2012	Released	Adrian Araujo, Initial Release

Table 1.2 Revision Review

Reviewer's Details	Version No.	Date
Adrian Araujo & Patricio Chandia	1.2	12/6/2012

1.3 Intended Audience

This document is intended for the Lake County network staff and management. It may also be used by Presidio Networked Solutions staff to assist in future support and operation of their network. Presidio will not divulge the content of this report to any third-party without prior consent from Lake County Board of County Commissioners.

1.4 Executive Summary

Lake County Board of County Commissioners (Lake County) is looking to provide a wireless connectivity solution utilizing point-to-multipoint wireless bridging at 24 fire stations spread across Lake County, Florida. Based on the site survey results performed at each fire station and tower site, Presidio Networked Solutions recommends that the Cambium Network 450 series AP will be the best option for this deployment.

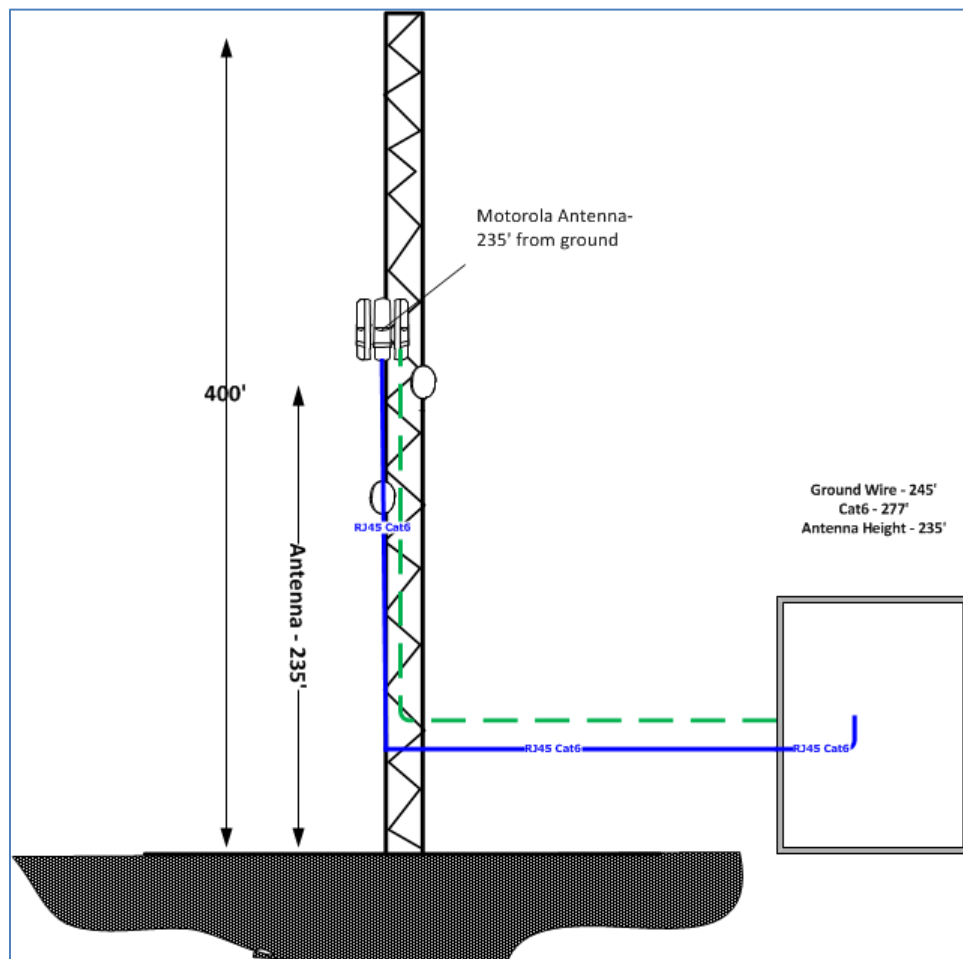
Data for these sites will be transported via existing microwave connection to the Lake County Data Center. This data will be encrypted using Juniper firewalls. At the tower sites Presidio recommends the county use the Cambium PMP 450 with 60 Degree Sectors antennas and at the fire stations the county uses the Cambium PMP subscriber module could reliably provide the targeted 10mb of throughput requested by the county.

Please refer to section 6.0 for the recommended equipment breakout and section 7.0 for hardware specifications regarding the Cambium PMP 450 and Motorola AP 7181.

2.0 LOCATIONS

The images below will show an approximate mounting locations, grounding and CaT6 cable lengths and bearings for each tower and remote surveyed. Shielded CAT5 or CAT6 will be used for each sites cabling.

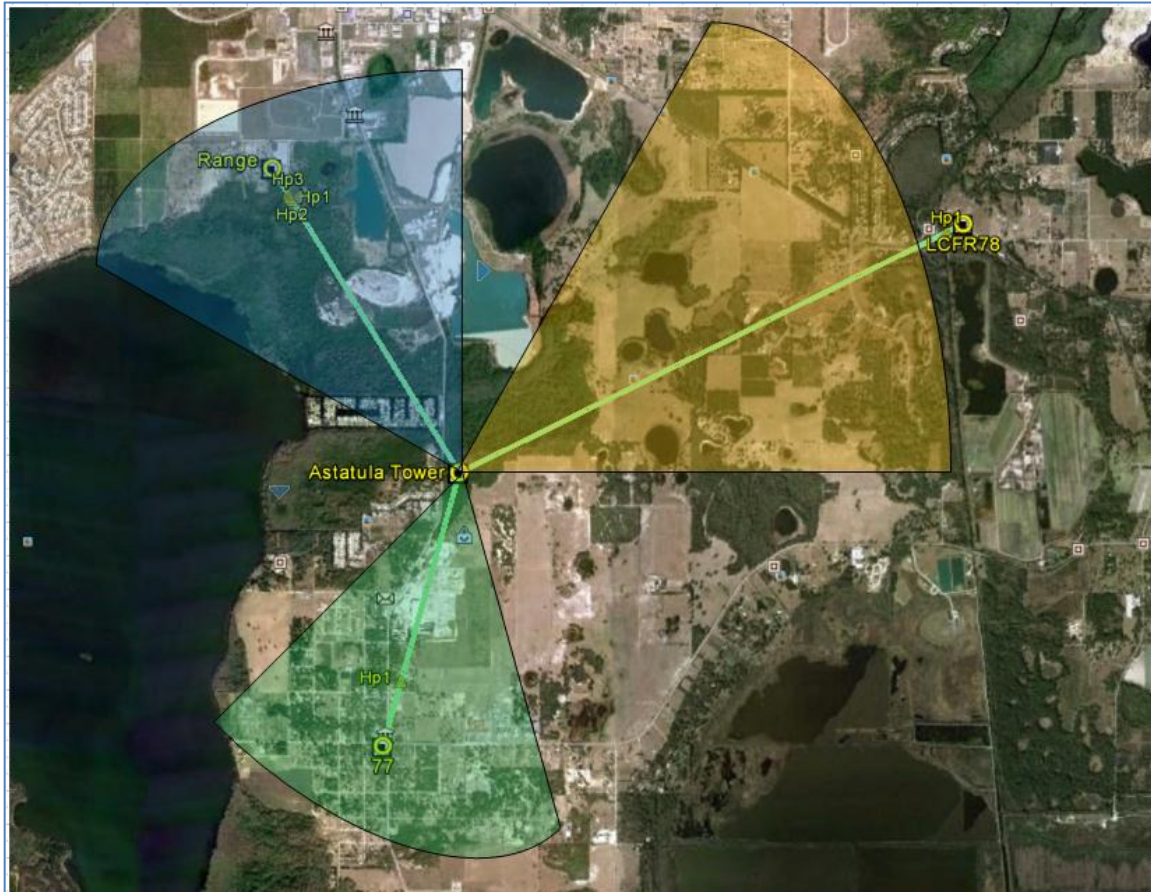
2.1 Tower Site – Astatula Tower



Name	Latitude	Longitude
Astatula	28.729639N	81.727306W

Antenna Height	235'
Cat6 Length Est.	277'
Ground Wire Est.	25'

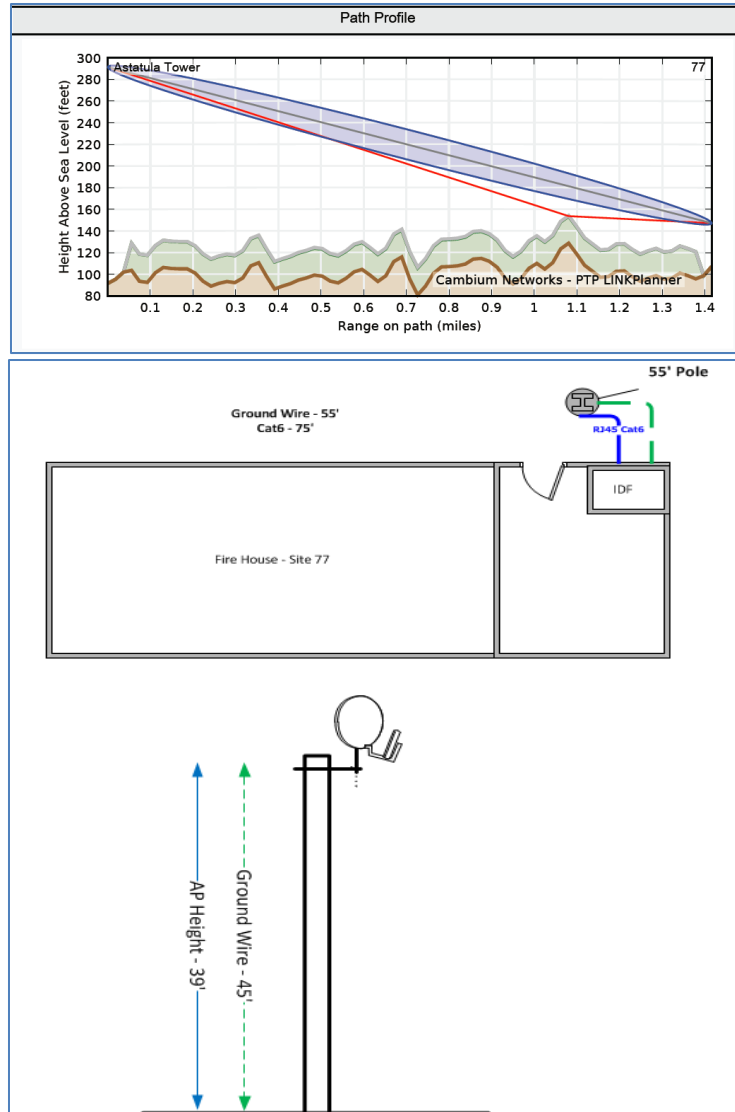
1. Astatula Tower site installation specifications:
 - a. Three PTP450 60 degree Access Points will be install
 - b. Each Access Point will be grounded to existing tower ground bus bar following manufacturer guidelines and Motorola R56 Standards and Guidelines for communications sites
 - c. A Cambium 600SS surge arrestor will be top mounted at antenna location and building entry point – each arrestor will be grounded to existing ground bus bar



Antenna Downtilt Angle

Base Antenna	<input type="text" value="235"/>	Remote Antenna	<input type="text" value="50"/>
Height (Feet)		Height (Feet)	
Distance (Miles)	<input type="text" value="3"/>	Downtilt Angle (°)	<input type="text" value="0.6691437"/>
<input type="button" value="Submit"/>			

2.1.1 Remote Site – LCFR 77

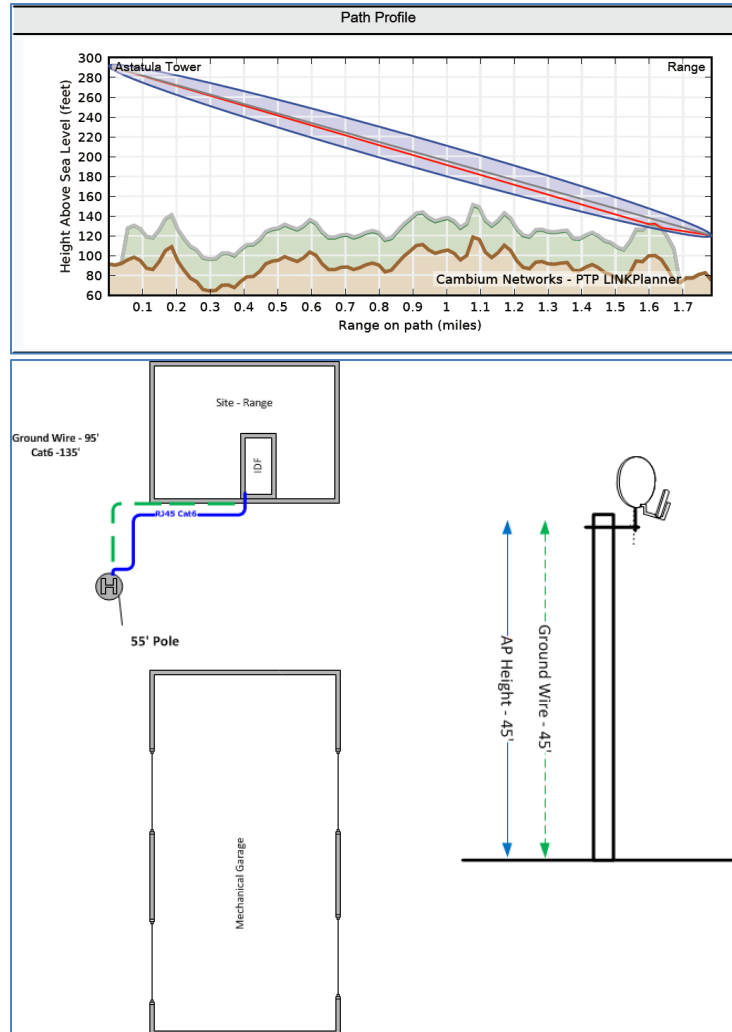


Name	Latitude	Longitude
LCFR77	28.71004N	81.7342W

Antenna Height	39'
Cat6 Length Est.	75'
Ground Wire Est.	55'
To Tower	Astatula Tower
Distance to Tower	1.4 miles
Left Bearing	195.7
Right Bearing	15.7

1. LCFR77 site installation specifications:
 - a. One PTP450 Subscriber unit will be install with a reflector plate
 - b. Align antenna
 - c. Install a 55' direct burial pole
 - d. Ground pole using Motorola R56 Grounding standards and install lightning dissipation system
 - e. Install a ground bus bar at building entry point
 - f. Each Subscriber unit will be grounded to new ground rods following manufacturer guidelines and Motorola R56 Standards and Guidelines for communications sites
 - g. A Cambium 600SS surge arrestor will be top mounted at antenna location and building entry point – each arrestor will be grounded to ground rod and new building bus bar

2.1.2 Remote Site – Range

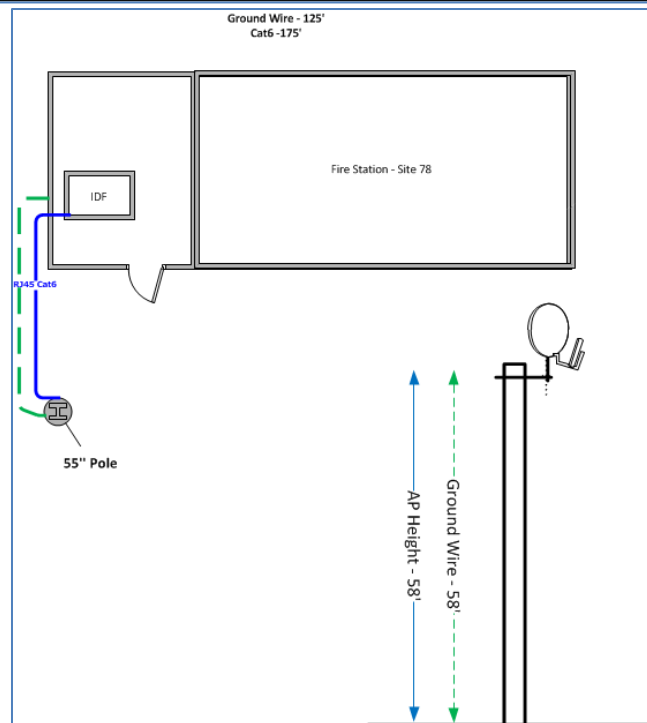
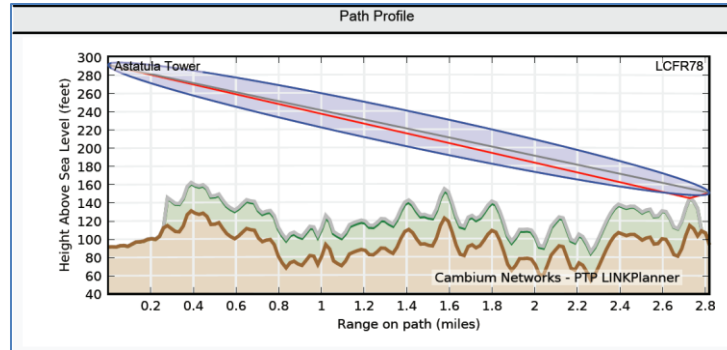


Name	Latitude	Longitude
Range	28.751667N	81.742778W

Antenna Height	45'
Cat6 Length Est.	135'
Ground Wire Est.	95'
To Tower	Astatula Tower
Distance to Tower	1.8 miles
Left Bearing	328.2
Right Bearing	148.2

1. Range site installation specifications:
 - a. One PTP450 Subscriber unit will be install with a reflector plate
 - b. Align antenna
 - c. Install a 55' direct burial pole
 - d. Ground pole using Motorola R56 Grounding standards and install lightning dissipation system
 - e. Install a ground bus bar at building entry point
 - f. Each Subscriber unit will be grounded to new ground rods following manufacturer guidelines and Motorola R56 Standards and Guidelines for communications sites
 - g. A Cambium 600SS surge arrestor will be top mounted at antenna location and building entry point – each arrestor will be grounded to ground rod and new building bus bar

2.1.3 Remote Site – LCFR 78

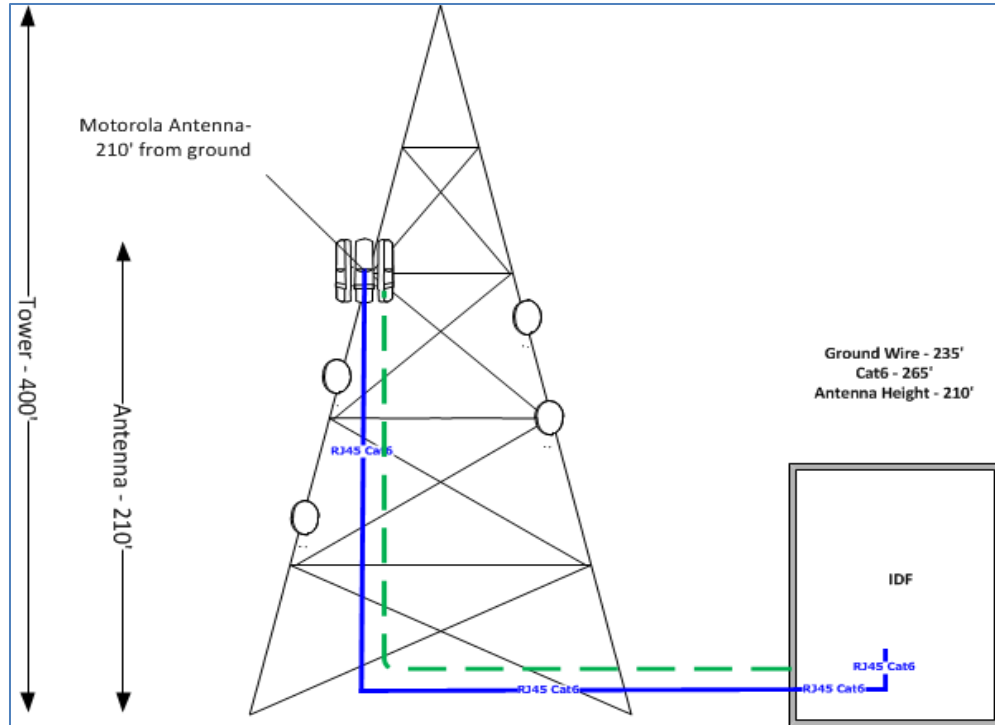


Name	Latitude	Longitude
LCFR 78	28.74766N	081.68560W

Antenna Height	58'
Cat6 Length Est.	175'
Ground Wire Est.	125'
To Tower	Astatula Tower
Distance to Tower	2.8 miles
Left Bearing	63.9
Right Bearing	243.9

1. LCFR78 site installation specifications:
 - a. One PTP450 Subscriber unit will be install with a reflector plate
 - b. Align antenna
 - c. Install a 55' direct burial pole
 - d. Extend pole to antenna mounting height using a 2" Sch40 pipe
 - e. Ground pole using Motorola R56 Grounding standards and install lightning dissipation system
 - f. Install a ground bus bar at building entry point
 - g. Each Subscriber unit will be grounded to new ground rods following manufacturer guidelines and Motorola R56 Standards and Guidelines for communications sites
 - h. A Cambium 600SS surge arrestor will be top mounted at antenna location and building entry point – each arrestor will be grounded to ground rod and new building bus bar

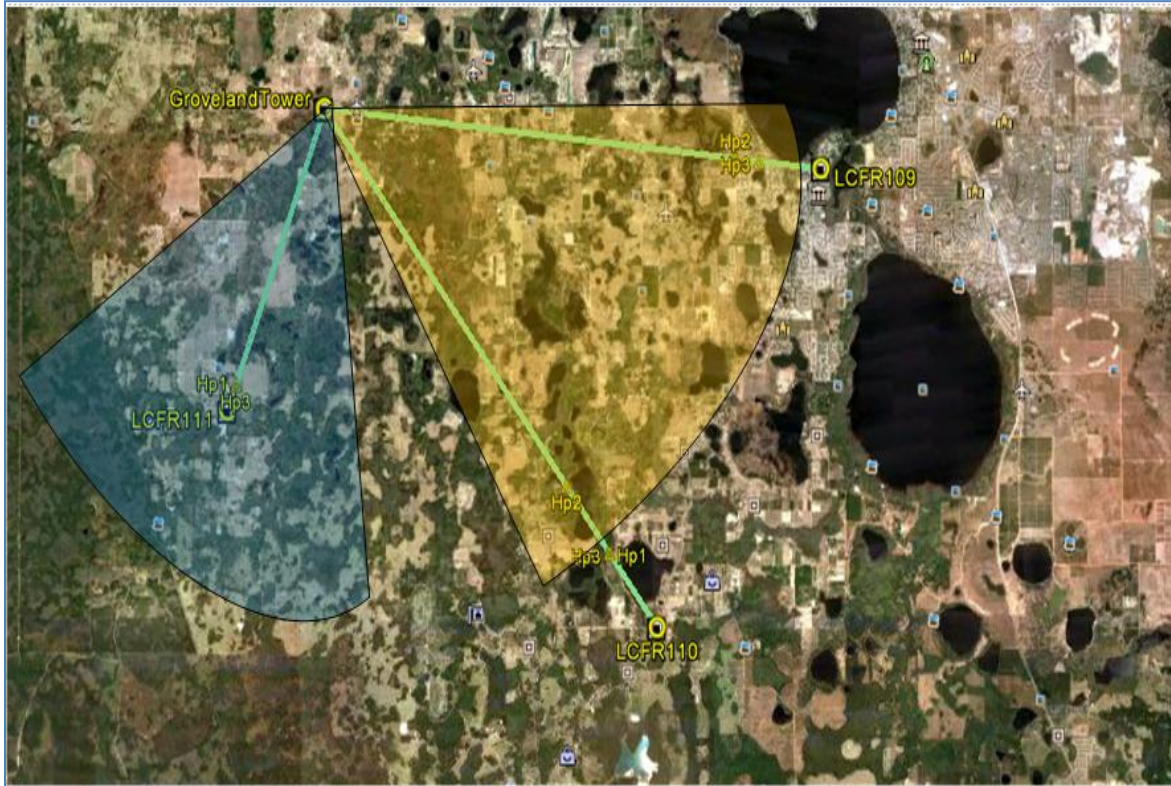
2.2 Tower Site – Groveland Tower



Name	Latitude	Longitude
Groveland	28.52608N	81.88253W

Antenna Height	210'
Cat6 Length Est.	265'
Ground Wire Est.	25'

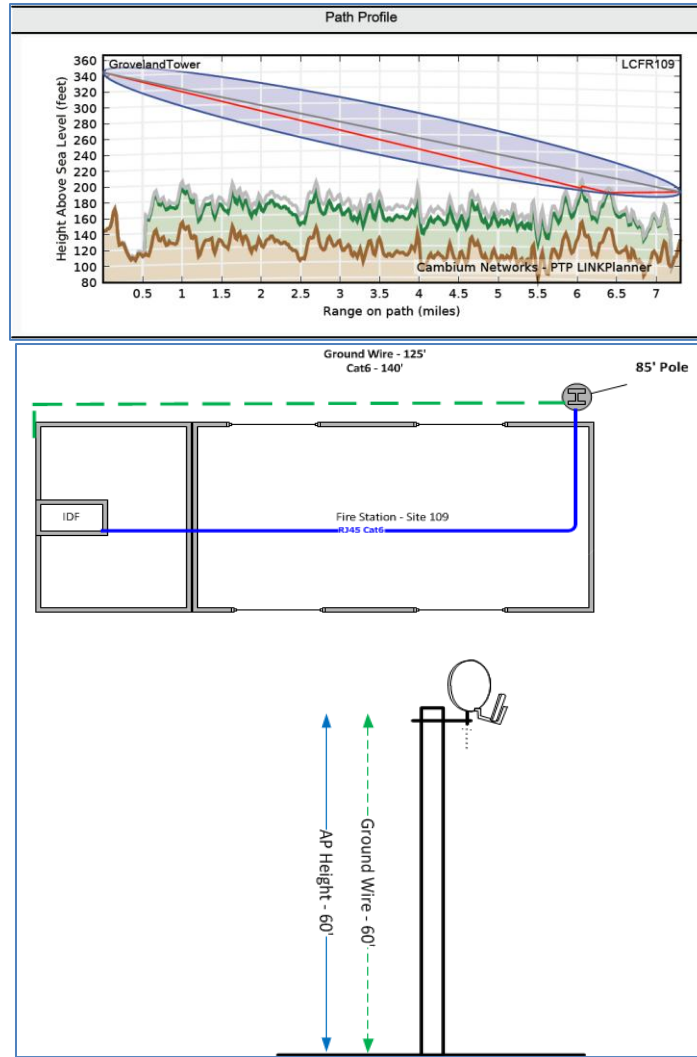
1. Groveland Tower site installation specifications:
 - a. Two PTP450 60 degree Access Points will be install
 - b. Each Access Point will be grounded to existing tower ground bus bar following manufacturer guidelines and Motorola R56 Standards and Guidelines for communications sites
 - c. A Cambium 600SS surge arrestor will be top mounted at antenna location and building entry point – each arrestor will be grounded to existing ground bus bar



Antenna Downtilt Angle

Base	Antenna	<input type="text" value="210"/>	Remote	Antenna	<input type="text" value="60"/>
Height (Feet)			Height (Feet)		
Distance (Miles)		<input type="text" value="5"/>	Downtilt Angle (°)		<input type="text" value="0.3255406"/>

2.2.1 Remote Site – LCFR 109

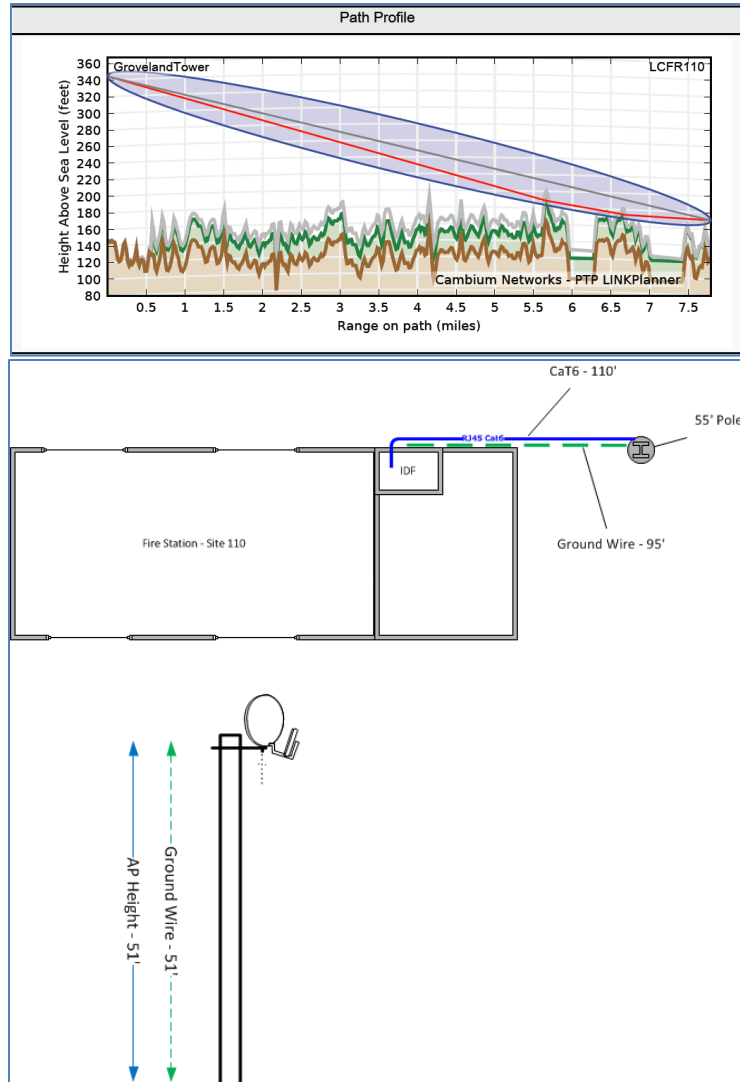


Name	Latitude	Longitude
LCFR 109	28.51600N	081.76293W

Antenna Height	60'
Cat6 Length Est.	140'
Ground Wire Est.	125'
To Tower	Groveland Tower
Distance to Tower	7.3 miles
Left Bearing	95.4
Right Bearing	275.5

1. LCFR109 site installation specifications:
 - a. One PTP450 Subscriber unit will be install with a reflector plate
 - b. Align antenna
 - c. Install a 89' direct burial pole
 - d. Ground pole using Motorola R56 Grounding standards and install lightning dissipation system
 - e. Install a ground bus bar at building entry point
 - f. Each Subscriber unit will be grounded to new ground rods following manufacturer guidelines and Motorola R56 Standards and Guidelines for communications sites
 - g. A Cambium 600SS surge arrestor will be top mounted at antenna location and building entry point – each arrestor will be grounded to ground rod and new building bus bar

2.2.2 Remote Site – LCFR 110

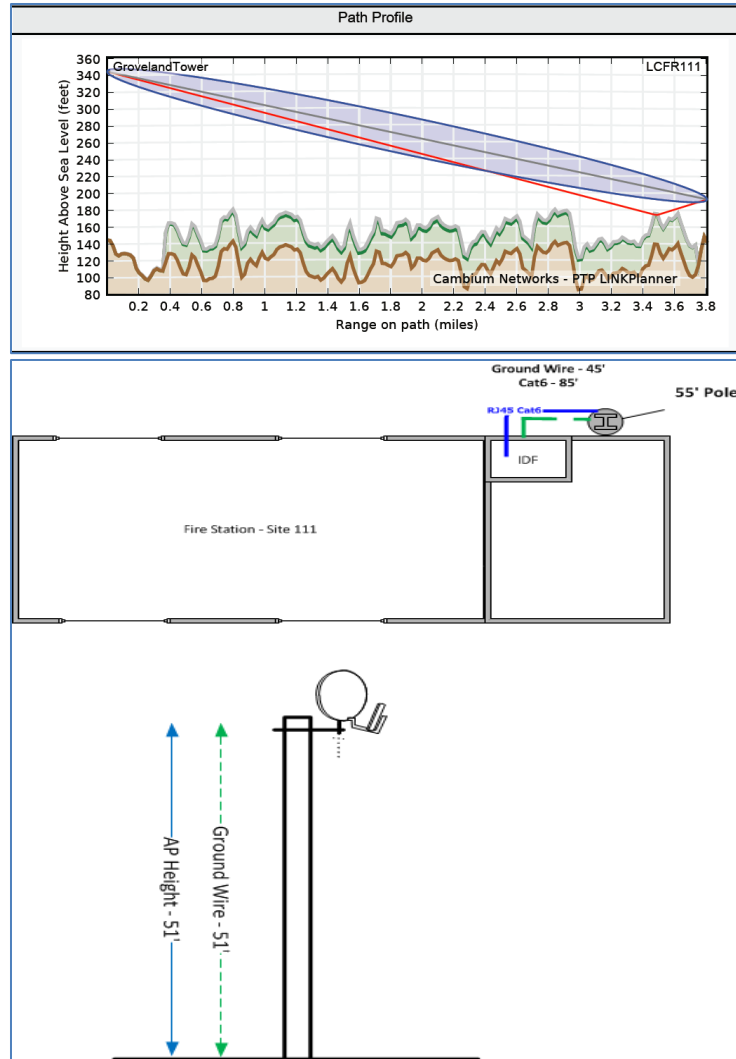


Name	Latitude	Longitude
LCFR 110	28.43800N	081.80228W

Antenna Height	51'
Cat6 Length Est.	110'
Ground Wire Est.	95'
To Tower	Groveland Tower
Distance to Tower	7.787 miles
Left Bearing	141.1
Right Bearing	321.2

1. LCFR110 site installation specifications:
 - a. One PTP450 Subscriber unit will be install with a reflector plate
 - b. Align antenna
 - c. Install a 55' direct burial pole
 - d. Extend pole to antenna mounting height using a 2" Sch40 pipe
 - e. Ground pole using Motorola R56 Grounding standards and install lightning dissipation system
 - f. Install a ground bus bar at building entry point
 - g. Each Subscriber unit will be grounded to new ground rods following manufacturer guidelines and Motorola R56 Standards and Guidelines for communications sites
 - h. A Cambium 600SS surge arrestor will be top mounted at antenna location and building entry point – each arrestor will be grounded to ground rod and new building bus bar

2.2.3 Remote Site – LCFR 111

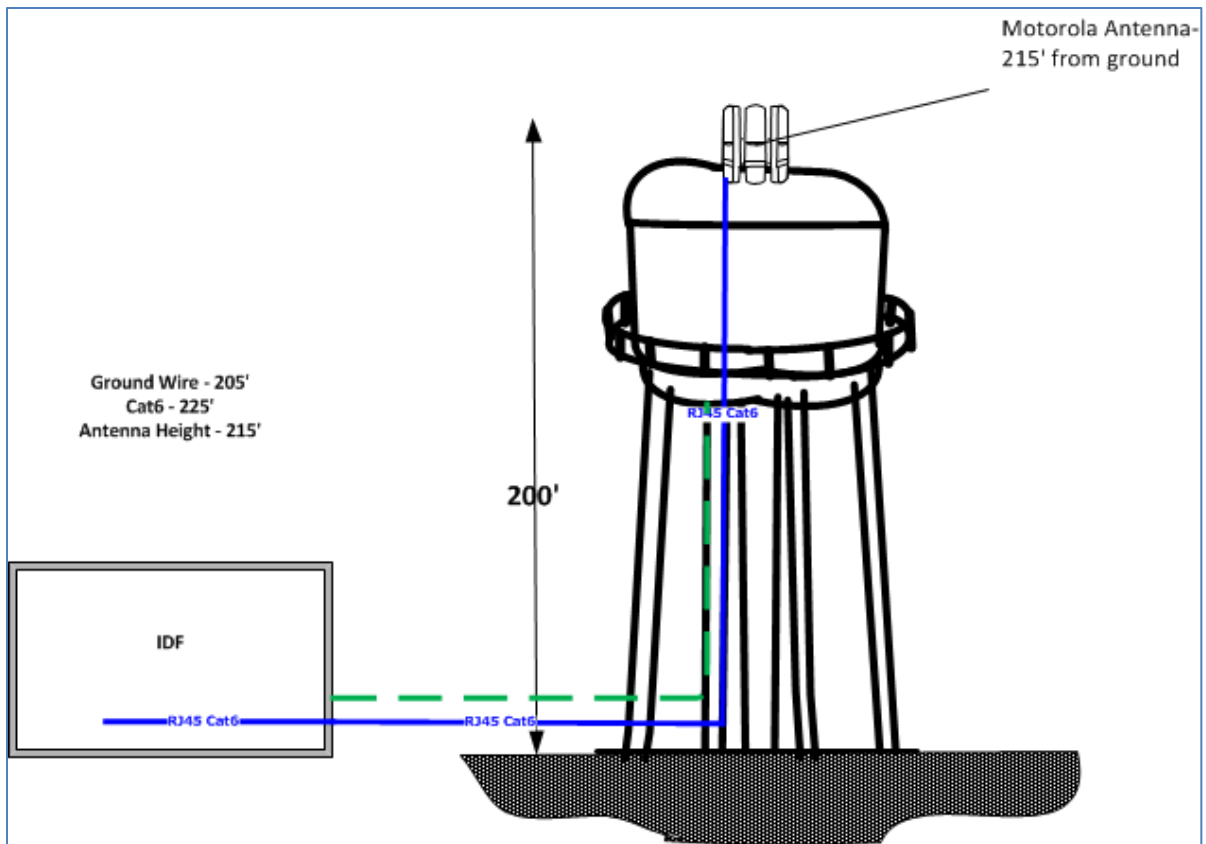


Right Name	Right Latitude	Right Longitude
LCFR 111	28.47472N	081.90574W

Antenna Height	51'
Cat6 Length Est.	85'
Ground Wire Est.	45'
To Tower	Groveland Tower
Distance to Tower	3.808
Left Bearing	201.8
Right Bearing	21.8

1. LCFR111 site installation specifications:
 - a. One PTP450 Subscriber unit will be install with a reflector plate
 - b. Align antenna
 - c. Install a 55' direct burial pole
 - d. Extend pole to antenna mounting height using a 2" Sch40 pipe
 - e. Ground pole using Motorola R56 Grounding standards and install lightning dissipation system
 - f. Install a ground bus bar at building entry point
 - g. Each Subscriber unit will be grounded to new ground rods following manufacturer guidelines and Motorola R56 Standards and Guidelines for communications sites
 - h. A Cambium 600SS surge arrestor will be top mounted at antenna location and building entry point – each arrestor will be grounded to ground rod and new building bus bar

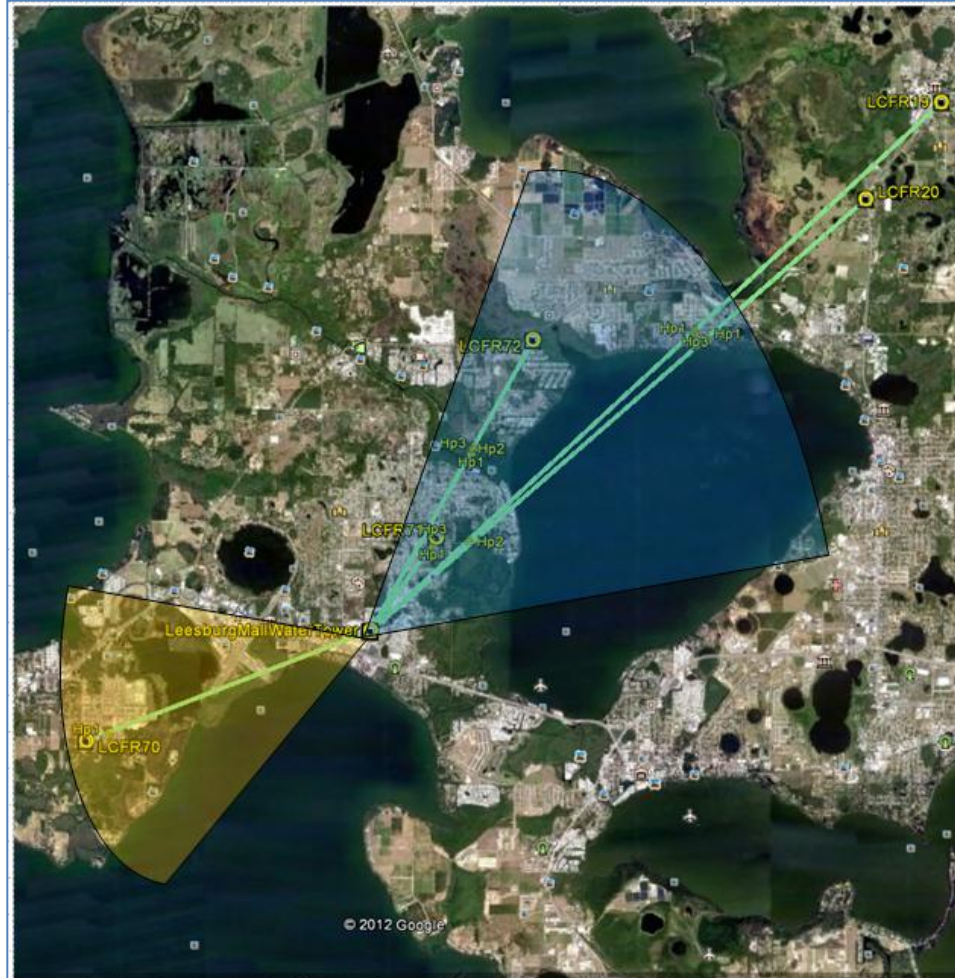
2.3 Tower Site – Leesburg Mall Water Tower (LMWT)



Name	Latitude	Longitude
LMWT	28.82605N	81.781775W

Antenna Height	215'
Cat6 Length Est.	225'
Ground Wire Est.	25'

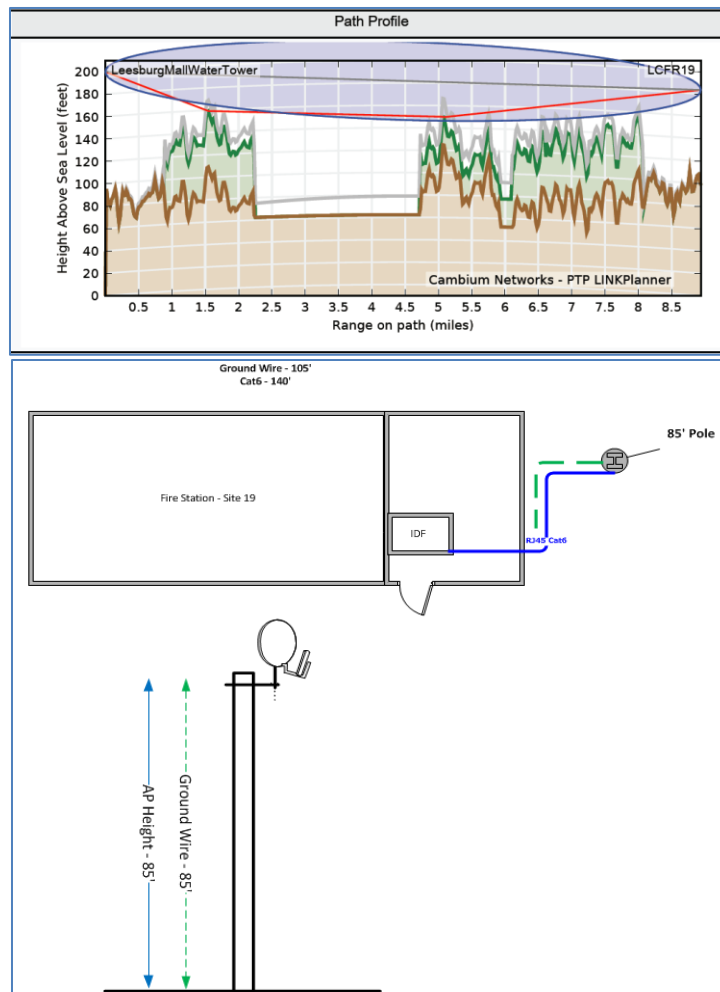
1. LMWT Water Tower site installation specifications:
 - a. Two PTP450 60 degree Access Points will be install
 - b. Each Access Point will be grounded to existing tower ground bus bar following manufacturer guidelines and Motorola R56 Standards and Guidelines for communications sites
 - c. A Cambium 600SS surge arrestor will be top mounted at antenna location and building entry point – each arrestor will be grounded to existing ground bus bar



Antenna Downtilt Angle

Base	Antenna	210	Remote	Antenna	70
Height (Feet)			Height (Feet)		
Distance (Miles)		9	Downtilt Angle (°)		0.1688002

2.3.1 Remote Site – LCFR 19

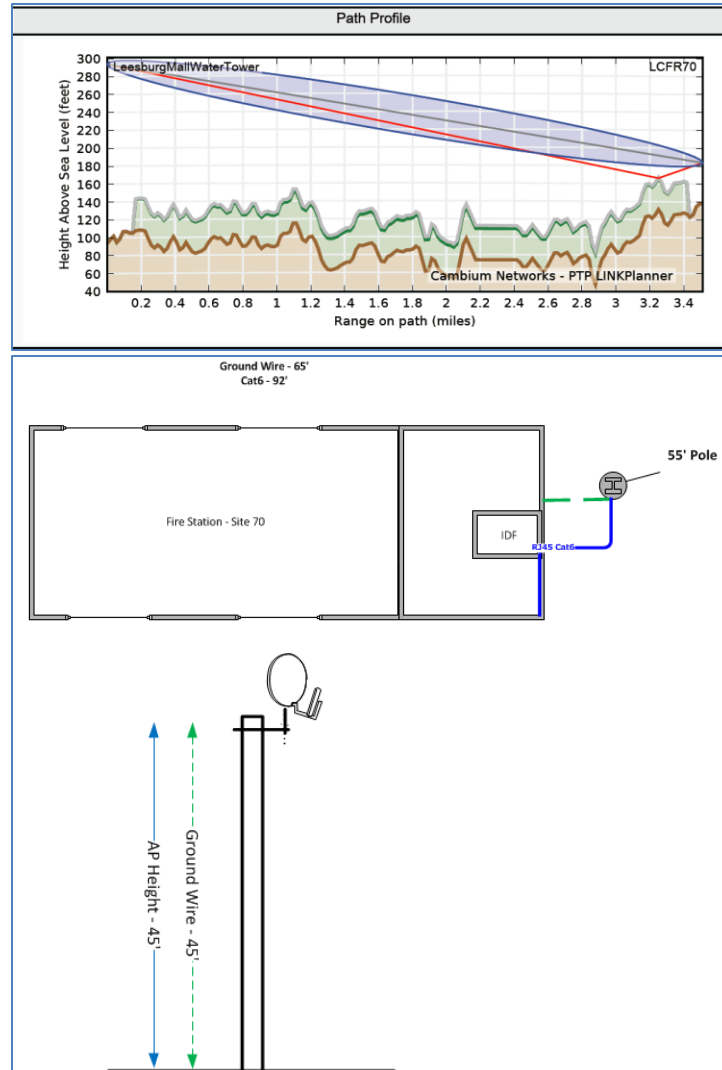


Name	Latitude	Longitude
LCFR 19	28.91392N	81.67325W

Antenna Height	85'
Cat6 Length Est.	140'
Ground Wire Est.	105'
To Tower	LMWT
Distance to Tower	8.9 miles
Left Bearing	47.4
Right Bearing	227.4

1. LCFR 19 site installation specifications:
 - a. One PTP450 Subscriber unit will be install with a reflector plate
 - b. Align antenna
 - c. Install a 89' direct burial pole
 - d. Extend pole to antenna mounting height using a 2" Sch40 pipe
 - e. Ground pole using Motorola R56 Grounding standards and install lightning dissipation system
 - f. Install a ground bus bar at building entry point
 - g. Each Subscriber unit will be grounded to new ground rods following manufacturer guidelines and Motorola R56 Standards and Guidelines for communications sites
 - h. A Cambium 600SS surge arrestor will be top mounted at antenna location and building entry point – each arrestor will be grounded to ground rod and new building bus bar

2.3.2 Remote Site – LCFR 70

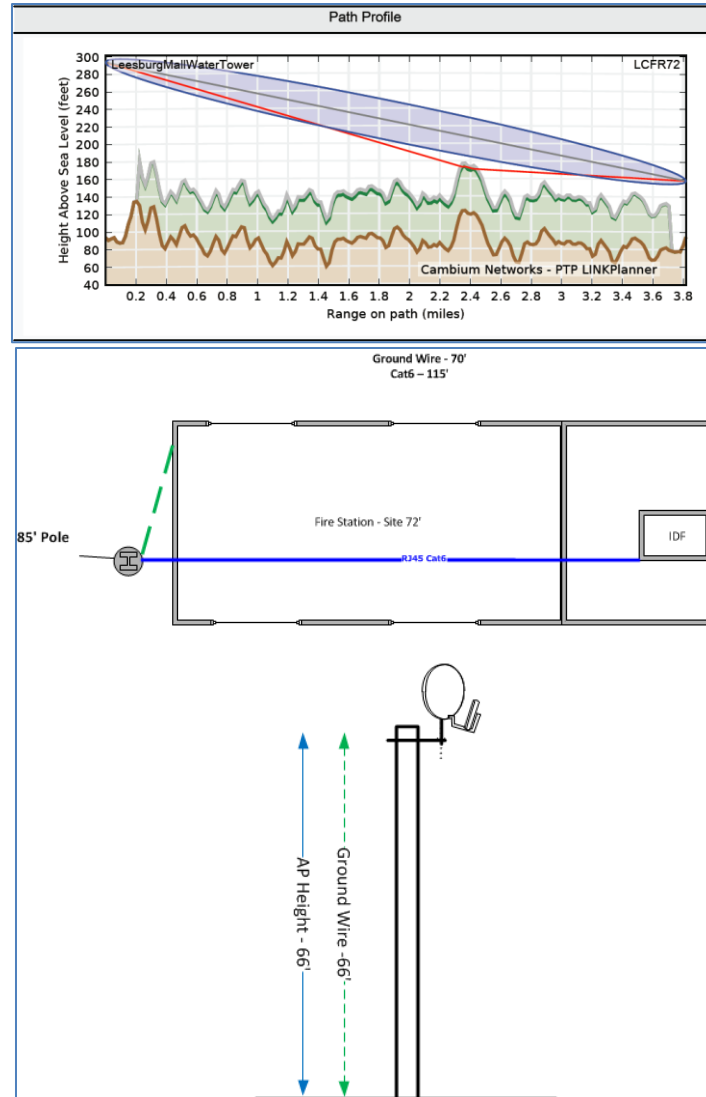


Right Name	Right Latitude	Right Longitude
LCFR 70	28.80768N	81.835775W

Antenna Height	45'
Cat6 Length Est.	92'
Ground Wire Est.	65'
To Tower	LMWT
Distance to Tower	3.511 miles
Left Bearing	248.9
Right Bearing	68.9

1. LCFR70 site installation specifications:
 - a. One PTP450 Subscriber unit will be install with a reflector plate
 - b. Align antenna
 - c. Install a 55' direct burial pole
 - d. Ground pole using Motorola R56 Grounding standards and install lightning dissipation system
 - e. Install a ground bus bar at building entry point
 - f. Each Subscriber unit will be grounded to new ground rods following manufacturer guidelines and Motorola R56 Standards and Guidelines for communications sites
 - g. A Cambium 600SS surge arrestor will be top mounted at antenna location and building entry point – each arrestor will be grounded to ground rod and new building bus bar

2.3.3 Remote Site – LCFR 72

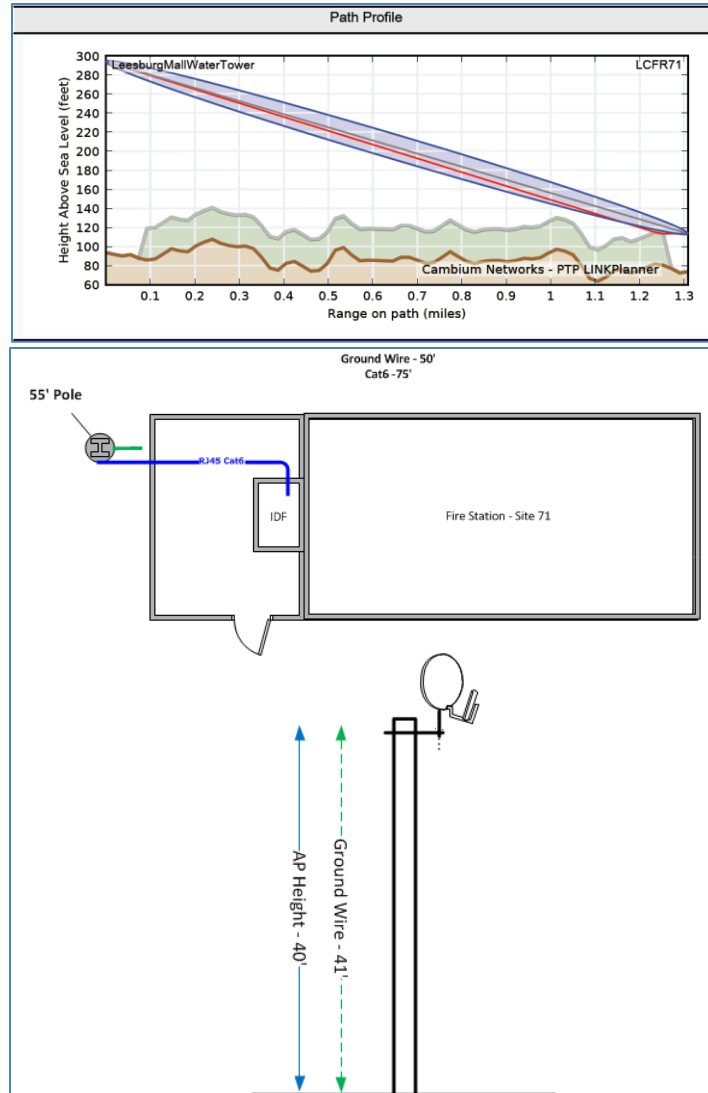


Name	Latitude	Longitude
LCFR 72	28.87439N	81.75093W

Antenna Height	66'
Cat6 Length Est.	115'
Ground Wire Est.	70'
To Tower	LMWT
Distance to Tower	3.818 miles
Left Bearing	29.3
Right Bearing	249.2

1. LCFR 72 site installation specifications:
 - a. One PTP450 Subscriber unit will be install with a reflector plate
 - b. Align antenna
 - c. Install a 89' direct burial pole
 - d. Ground pole using Motorola R56 Grounding standards and install lightning dissipation system
 - e. Install a ground bus bar at building entry point
 - f. Each Subscriber unit will be grounded to new ground rods following manufacturer guidelines and Motorola R56 Standards and Guidelines for communications sites
 - g. A Cambium 600SS surge arrestor will be top mounted at antenna location and building entry point – each arrestor will be grounded to ground rod and new building bus bar

2.3.4 Remote Site – LCFR 71

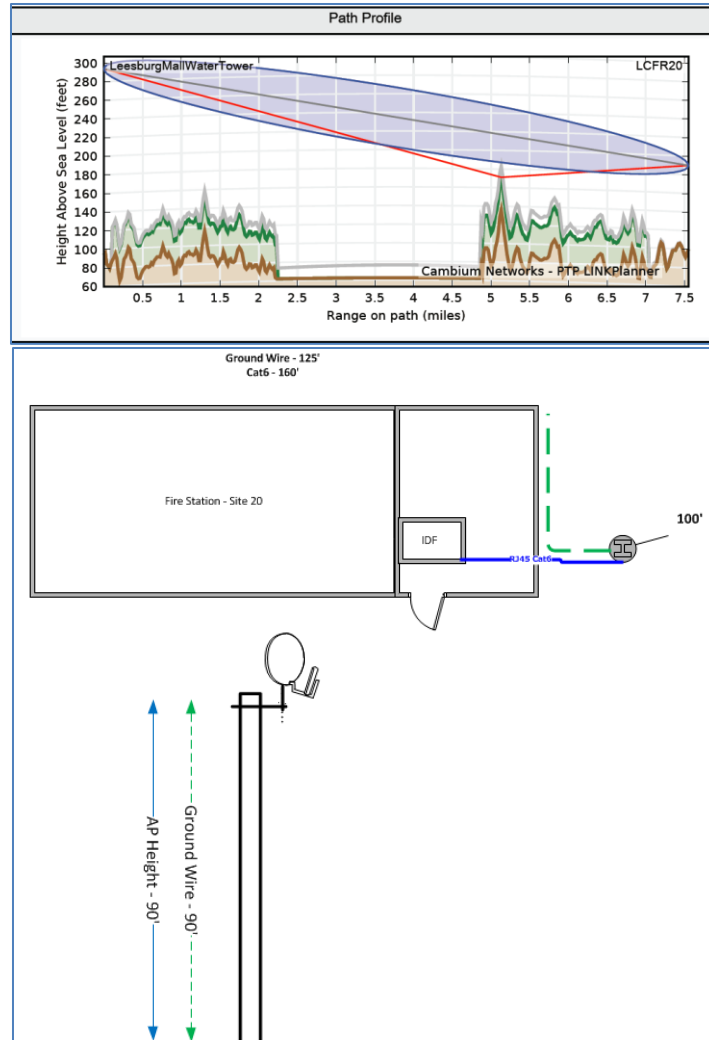


Name	Latitude	Longitude
LCFR 71	28.84155N	81.7693W

Antenna Height	40'
Cat6 Length Est.	75'
Ground Wire Est.	50'
To Tower	LMWT
Distance to Tower	1.308 miles
Left Bearing	35.3
Right Bearing	215.3

1. LCFR 71 site installation specifications:
 - a. One PTP450 Subscriber unit will be install with a reflector plate
 - b. Align antenna
 - c. Install a 55' direct burial pole
 - d. Ground pole using Motorola R56 Grounding standards and install lightning dissipation system
 - e. Install a ground bus bar at building entry point
 - f. Each Subscriber unit will be grounded to new ground rods following manufacturer guidelines and Motorola R56 Standards and Guidelines for communications sites
 - g. A Cambium 600SS surge arrestor will be top mounted at antenna location and building entry point – each arrestor will be grounded to ground rod and new building bus bar

2.3.5 Remote Site – LCFR 20

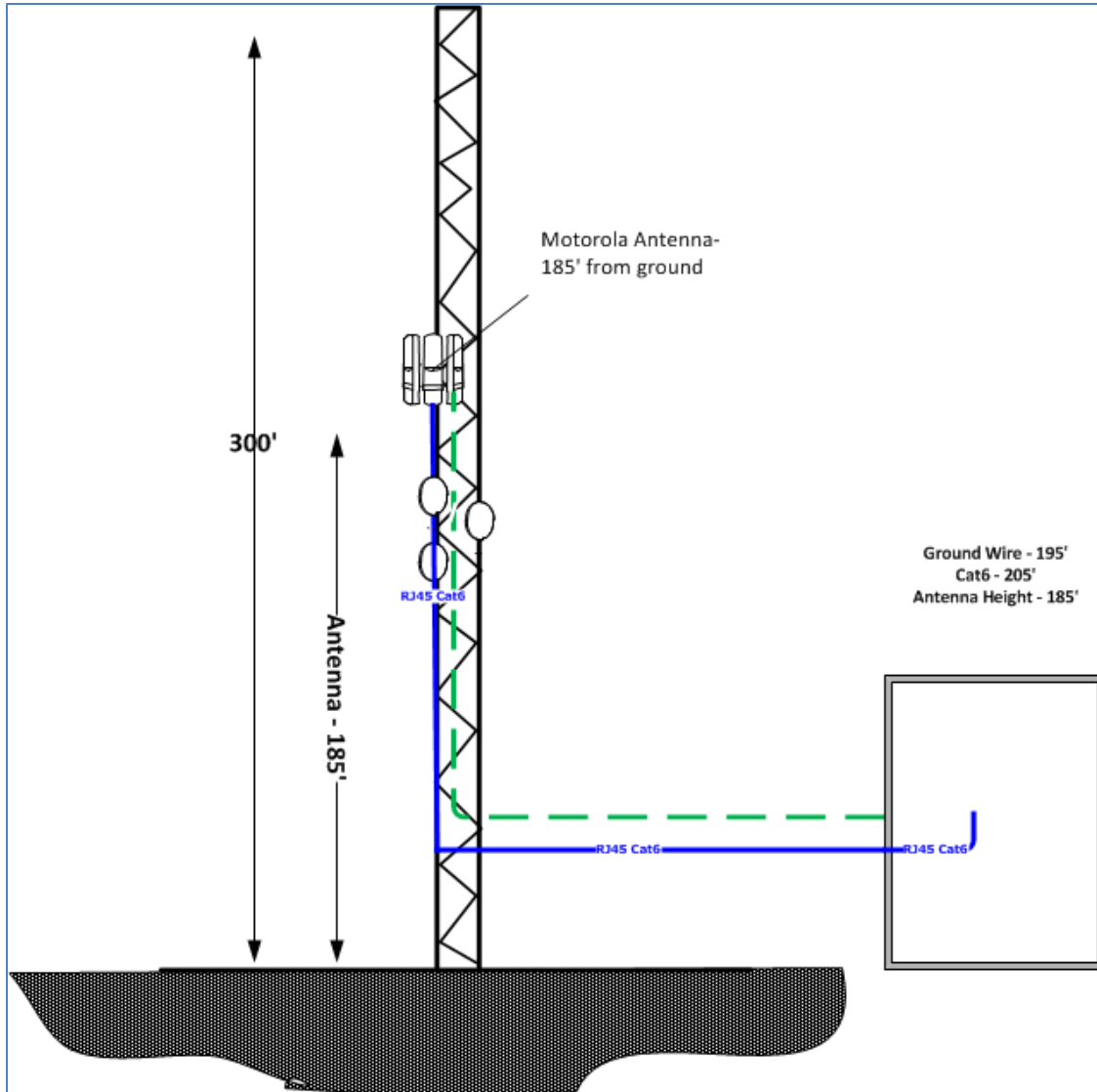


Name	Latitude	Longitude
LCFR 20	28.916383N	81.674559W

Antenna Height	90'
Cat6 Length Est.	160'
Ground Wire Est.	125'
To Tower	LMWT
Distance to Tower	7.5 miles
Left Bearing	49.1
Right Bearing	229.1

1. LCFR 20 site installation specifications:
 - a. One PTP450 Subscriber unit will be install with a reflector plate
 - b. Align antenna
 - c. Install a 89' direct burial pole
 - d. Extend pole to antenna mounting height using a 2" Sch40 pipe
 - e. Ground pole using Motorola R56 Grounding standards and install lightning dissipation system
 - f. Install a ground bus bar at building entry point
 - g. Each Subscriber unit will be grounded to new ground rods following manufacturer guidelines and Motorola R56 Standards and Guidelines for communications sites
 - h. A Cambium 600SS surge arrestor will be top mounted at antenna location and building entry point – each arrestor will be grounded to ground rod and new building bus bar

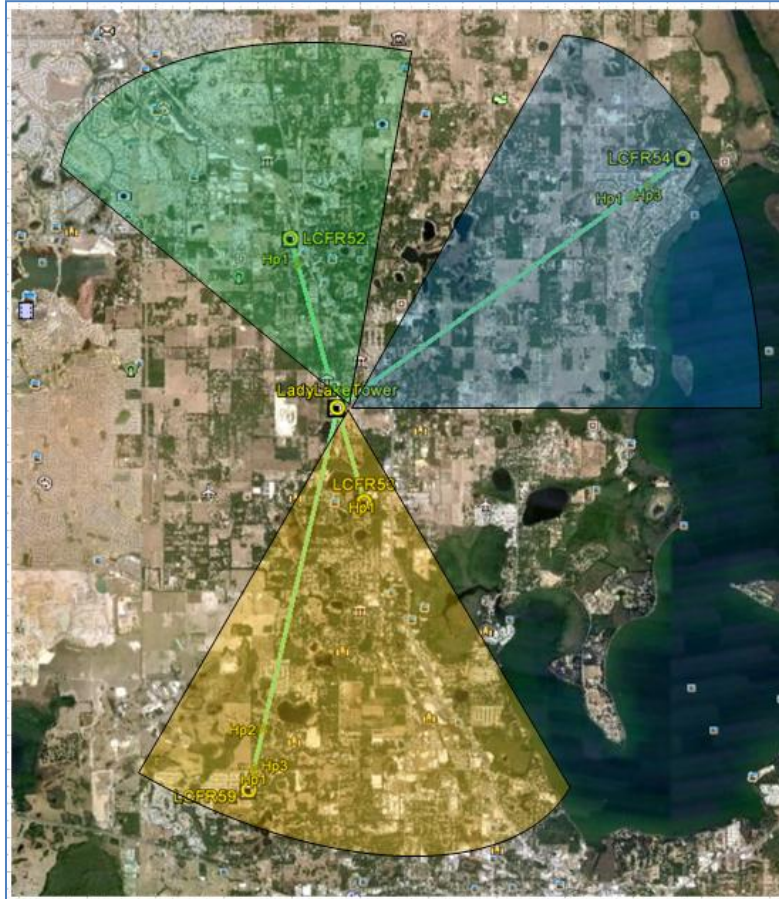
2.4 Tower Site – Lady Lake Tower (LLT)



Name	Latitude	Longitude
Lady Lake	28.891806N	81.916722W

Antenna Height	185'
Cat6 Length Est.	205'
Ground Wire Est.	25'

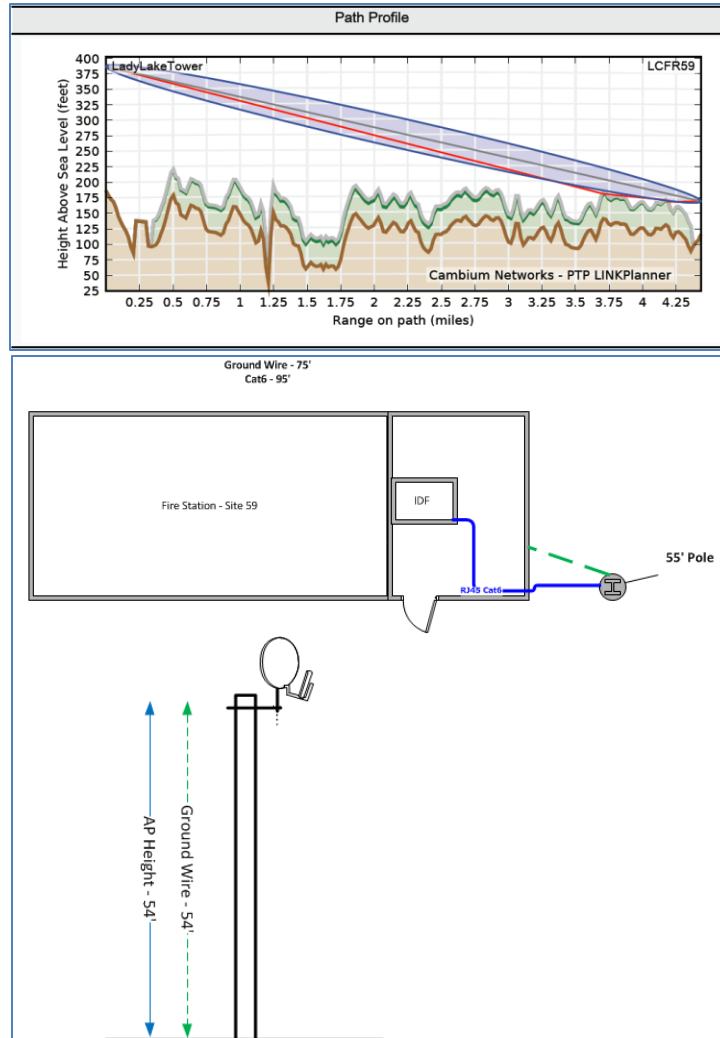
1. Lady Lake Tower site installation specifications:
 - a. Three PTP450 60 degree Access Points will be install
 - b. Each Access Point will be grounded to existing tower ground bus bar following manufacturer guidelines and Motorola R56 Standards and Guidelines for communications sites
 - c. A Cambium 600SS surge arrestor will be top mounted at antenna location and building entry point – each arrestor will be grounded to existing ground bus bar



Antenna Downtilt Angle

Base Antenna	<input type="text" value="185"/>	Remote Antenna	<input type="text" value="60"/>
Height (Feet)		Height (Feet)	
Distance (Miles)	<input type="text" value="5"/>	Downtilt Angle (°)	<input type="text" value="0.2712848"/>
<input type="button" value="Submit"/>			

2.4.1 Remote Site – LCFR 59

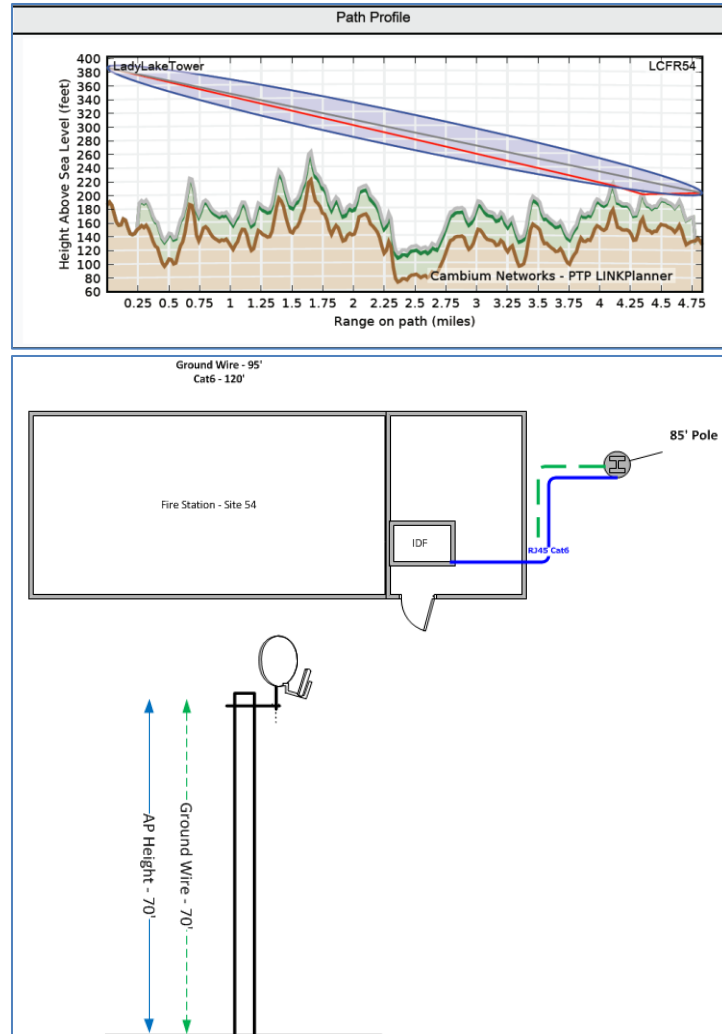


Name	Latitude	Longitude
LCFR 59	28.82908N	081.93321W

Antenna Height	54'
Cat6 Length Est.	95'
Ground Wire Est.	75'
To Tower	LLT
Distance to Tower	4.434 miles
Left Bearing	193
Right Bearing	13

1. LCFR 59 site installation specifications:
 - a. One PTP450 Subscriber unit will be install with a reflector plate
 - b. Align antenna
 - c. Install a 55' direct burial pole
 - d. Extend pole to antenna mounting height using a 2" Sch40 pipe
 - e. Ground pole using Motorola R56 Grounding standards and install lightning dissipation system
 - f. Install a ground bus bar at building entry point
 - g. Each Subscriber unit will be grounded to new ground rods following manufacturer guidelines and Motorola R56 Standards and Guidelines for communications sites
 - h. A Cambium 600SS surge arrestor will be top mounted at antenna location and building entry point – each arrestor will be grounded to ground rod and new building bus bar

2.4.2 Remote Site – LCFR 54

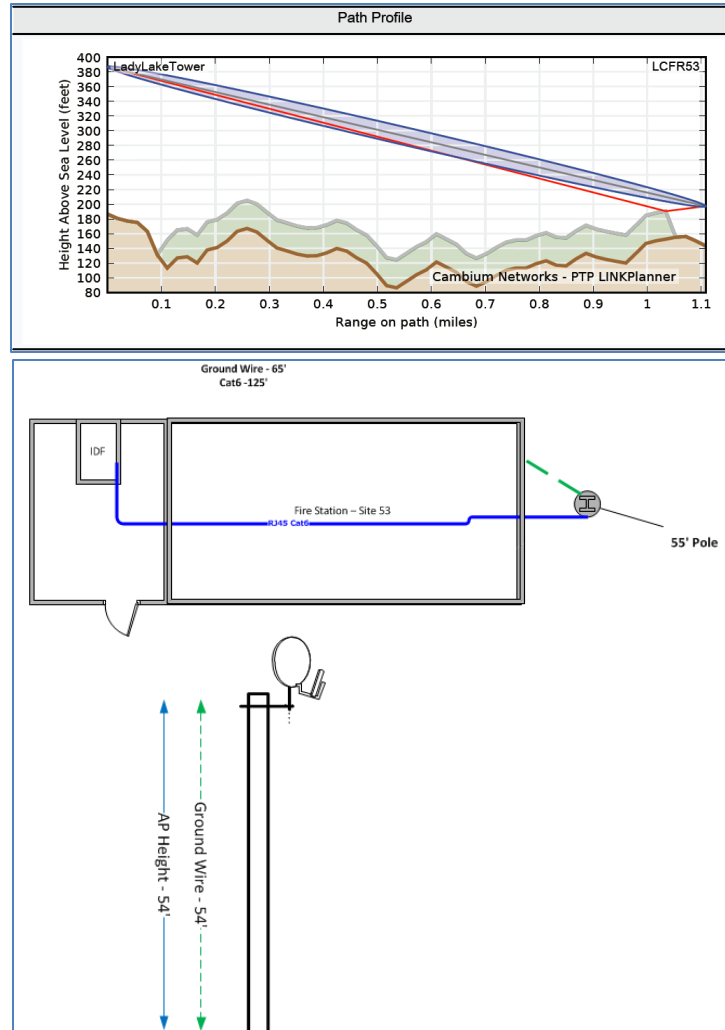


Name	Latitude	Longitude
LCFR 54	28.93283N	081.85201W

Antenna Height	70'
Cat6 Length Est.	120'
Ground Wire Est.	95'
To Tower	LLT
Distance to Tower	4.833 miles
Left Bearing	54.2
Right Bearing	234.2

1. LCFR 54 site installation specifications:
 - a. One PTP450 Subscriber unit will be install with a reflector plate
 - b. Align antenna
 - c. Install a 89' direct burial pole
 - d. Ground pole using Motorola R56 Grounding standards and install lightning dissipation system
 - e. Install a ground bus bar at building entry point
 - f. Each Subscriber unit will be grounded to new ground rods following manufacturer guidelines and Motorola R56 Standards and Guidelines for communications sites
 - g. A Cambium 600SS surge arrestor will be top mounted at antenna location and building entry point – each arrestor will be grounded to ground rod and new building bus bar

2.4.3 Remote Site – LCFR 53



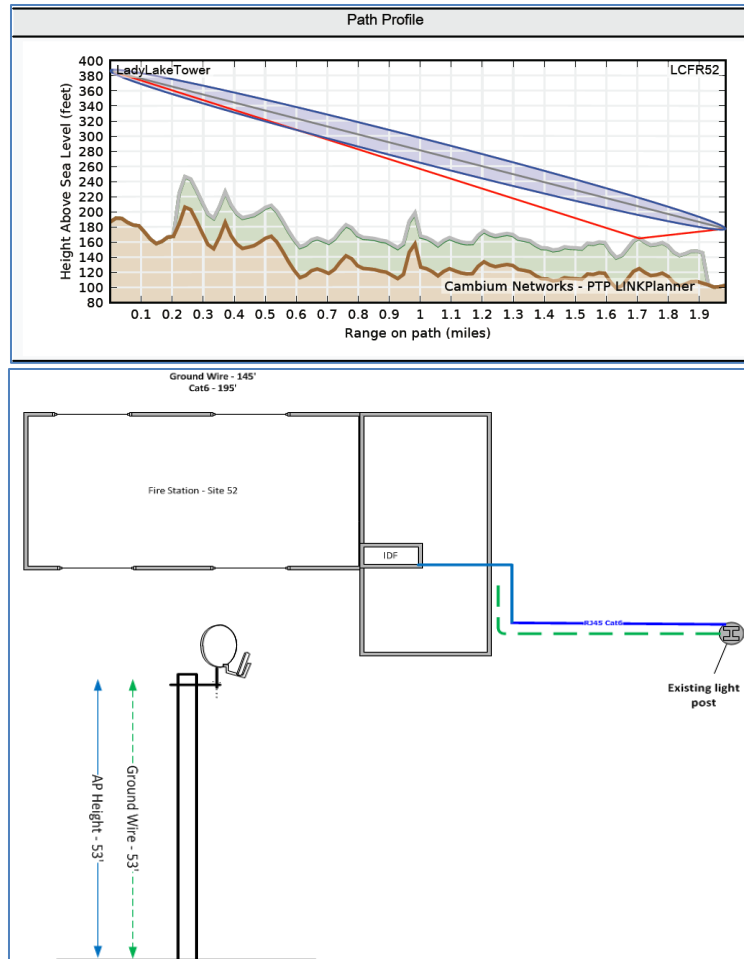
Name	Latitude	Longitude
LCFR 53	28.87634N	081.91168W

Antenna Height	54'
Cat6 Length Est.	125'
Ground Wire Est.	65'
To Tower	LLT
Distance to Tower	1.108 miles
Left Bearing	164
Right Bearing	344

1. LCFR 53 site installation specifications:
 - a. One PTP450 Subscriber unit will be install with a reflector plate
 - b. Align antenna
 - c. Install a 55' direct burial pole
 - d. Extend pole to antenna mounting height using a 2" Sch40 pipe
 - e. Ground pole using Motorola R56 Grounding standards and install lightning dissipation system
 - f. Install a ground bus bar at building entry point
 - g. Each Subscriber unit will be grounded to new ground rods following manufacturer guidelines and Motorola R56 Standards and Guidelines for communications sites
 - h. A Cambium 600SS surge arrestor will be top mounted at antenna location and building entry point – each arrestor will be grounded to ground rod and new building bus bar

2.4.4 Remote Site – LCFR 52

This site may be able to use existing light post located next to the fire station, therefore the mounting post will not be included in the BoM.

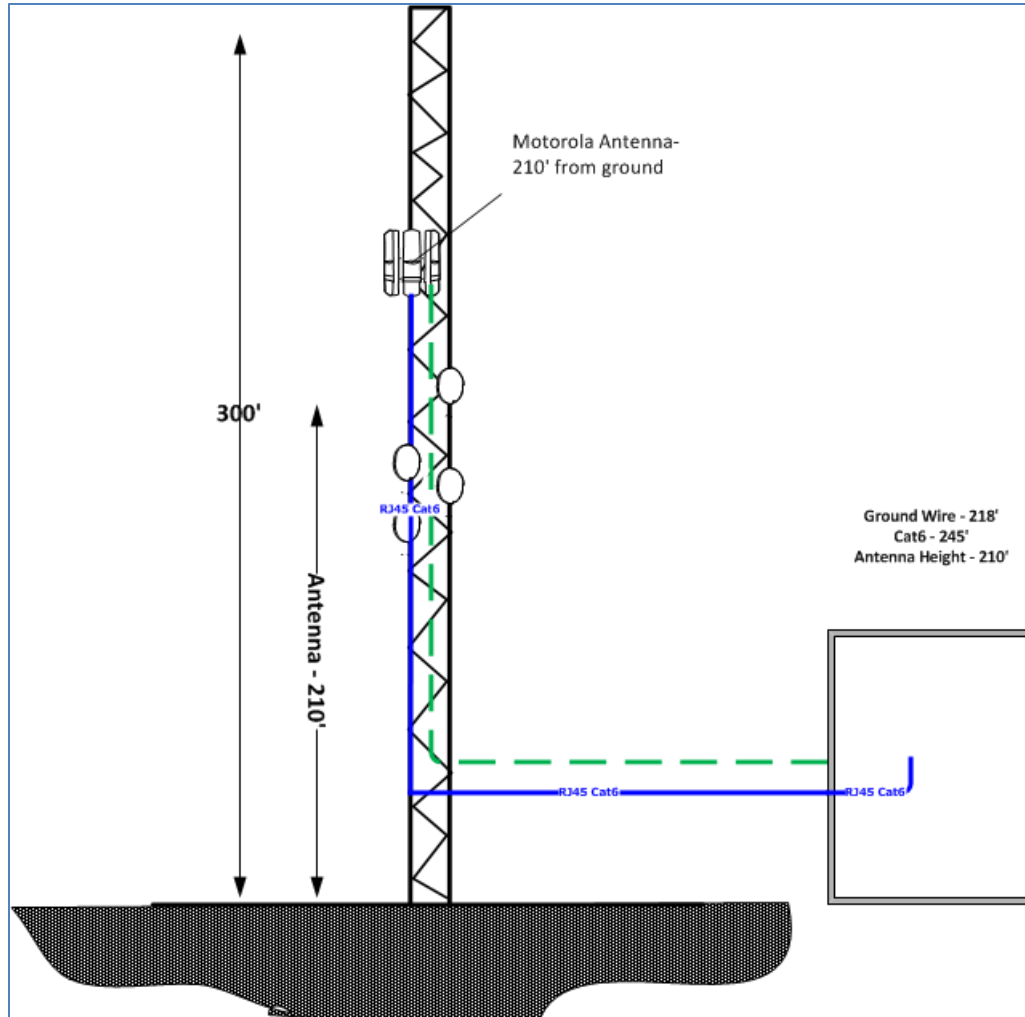


Name	Latitude	Longitude
LCFR 52	28.91955N	081.92557W

Antenna Height	53'
Cat6 Length Est.	195'
Ground Wire Est.	145'
To Tower	LLT
Distance to Tower	1.984 miles
Left Bearing	344.3
Right Bearing	164.3

1. LCFR 52 site installation specifications:
 - a. One PTP450 Subscriber unit will be install with a reflector plate
 - b. Align antenna
 - c. Install a 55' direct burial pole
 - d. Extend pole to antenna mounting height using a 2" Sch40 pipe
 - e. Ground pole using Motorola R56 Grounding standards and install lightning dissipation system
 - f. Install a ground bus bar at building entry point
 - g. Each Subscriber unit will be grounded to new ground rods following manufacturer guidelines and Motorola R56 Standards and Guidelines for communications sites
 - h. A Cambium 600SS surge arrestor will be top mounted at antenna location and building entry point – each arrestor will be grounded to ground rod and new building bus bar

2.5 Tower Site – Leesburg Water Treatment Tower (LWTT)



Name	Latitude	Longitude
LWTT	28.752283N	81.928036W

Antenna Height	210'
Cat6 Length Est.	245'
Ground Wire Est.	25'

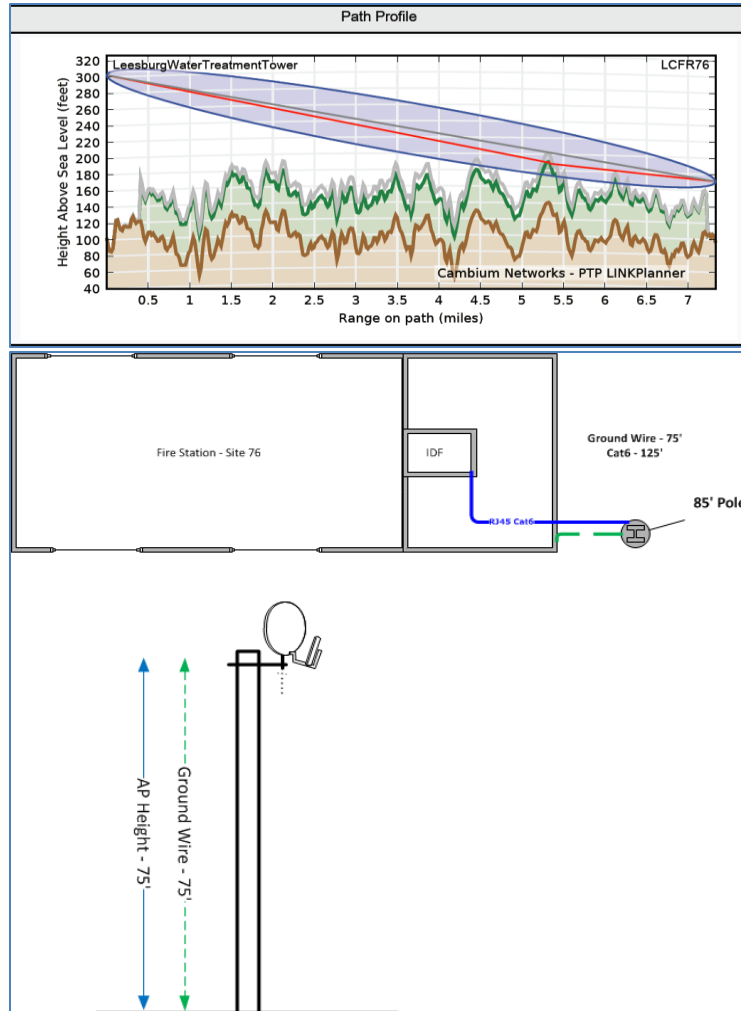
1. LW Tower site installation specifications:
 - a. One PTP450 60 degree Access Points will be install
 - b. Each Access Point will be grounded to existing tower ground bus bar following manufacturer guidelines and Motorola R56 Standards and Guidelines for communications sites
 - c. A Cambium 600SS surge arrestor will be top mounted at antenna location and building entry point – each arrestor will be grounded to existing ground bus bar



Antenna Downtilt Angle

Base	Antenna	210	Remote	Antenna	60
Height (Feet)			Height (Feet)		
Distance (Miles)		8	Downtilt Angle (°)		0.2034642

2.5.1 Remote Site – LCFR 76

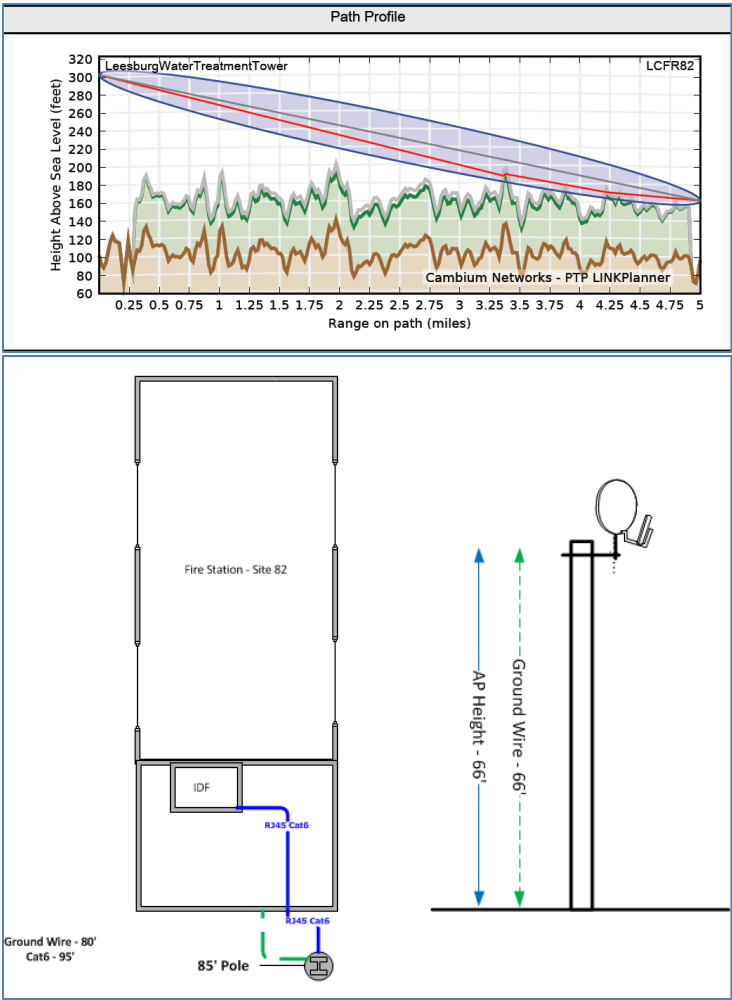


Name	Latitude	Longitude
LCFR 76	28.74311N	081.80775W

Antenna Height	75'
Cat6 Length Est.	125'
Ground Wire Est.	75'
To Tower	LWTT
Distance to Tower	7.328 miles
Left Bearing	94.9
Right Bearing	275

1. LCFR 76 site installation specifications:
 - a. One PTP450 Subscriber unit will be install with a reflector plate
 - b. Align antenna
 - c. Install a 89' direct burial pole
 - d. Ground pole using Motorola R56 Grounding standards and install lightning dissipation system
 - e. Install a ground bus bar at building entry point
 - f. Each Subscriber unit will be grounded to new ground rods following manufacturer guidelines and Motorola R56 Standards and Guidelines for communications sites
 - g. A Cambium 600SS surge arrestor will be top mounted at antenna location and building entry point – each arrestor will be grounded to ground rod and new building bus bar

2.5.2 Remote Site – LCFR 82

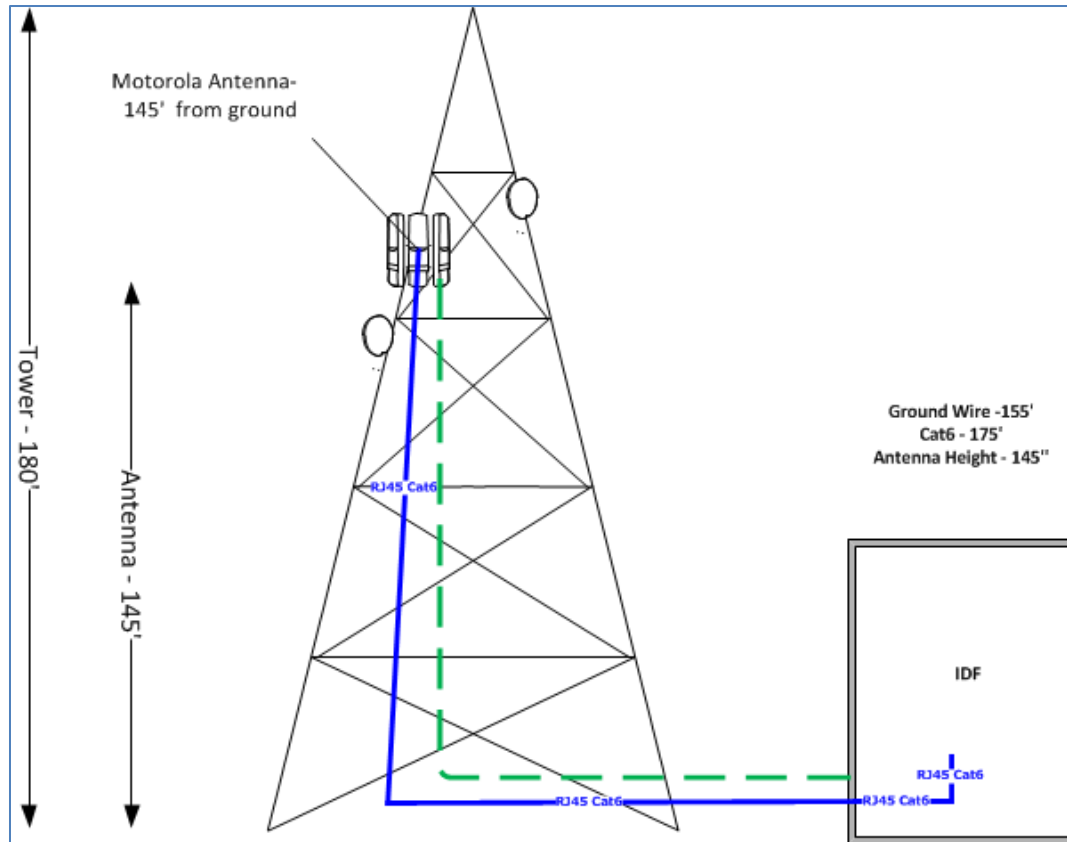


Name	Latitude	Longitude
LCFR 82	28.71073N	081.86047W

Antenna Height	66'
Cat6 Length Est.	95'
Ground Wire Est.	80'
To Tower	LWTT
Distance to Tower	5.001 miles
Left Bearing	124.9
Right Bearing	304.9

1. LCFR 82 site installation specifications:
 - a. One PTP450 Subscriber unit will be install with a reflector plate
 - b. Align antenna
 - c. Install a 89' direct burial pole
 - d. Ground pole using Motorola R56 Grounding standards and install lightning dissipation system
 - e. Install a ground bus bar at building entry point
 - f. Each Subscriber unit will be grounded to new ground rods following manufacturer guidelines and Motorola R56 Standards and Guidelines for communications sites
 - g. A Cambium 600SS surge arrestor will be top mounted at antenna location and building entry point – each arrestor will be grounded to ground rod and new building bus bar

2.6 Tower Site – Mount Dora Water Tower (MDWT)



Name	Latitude	Longitude
MDWT	28.794186N	81.6244W

Antenna Height	210'
Cat6 Length Est.	245'
Ground Wire Est.	25'

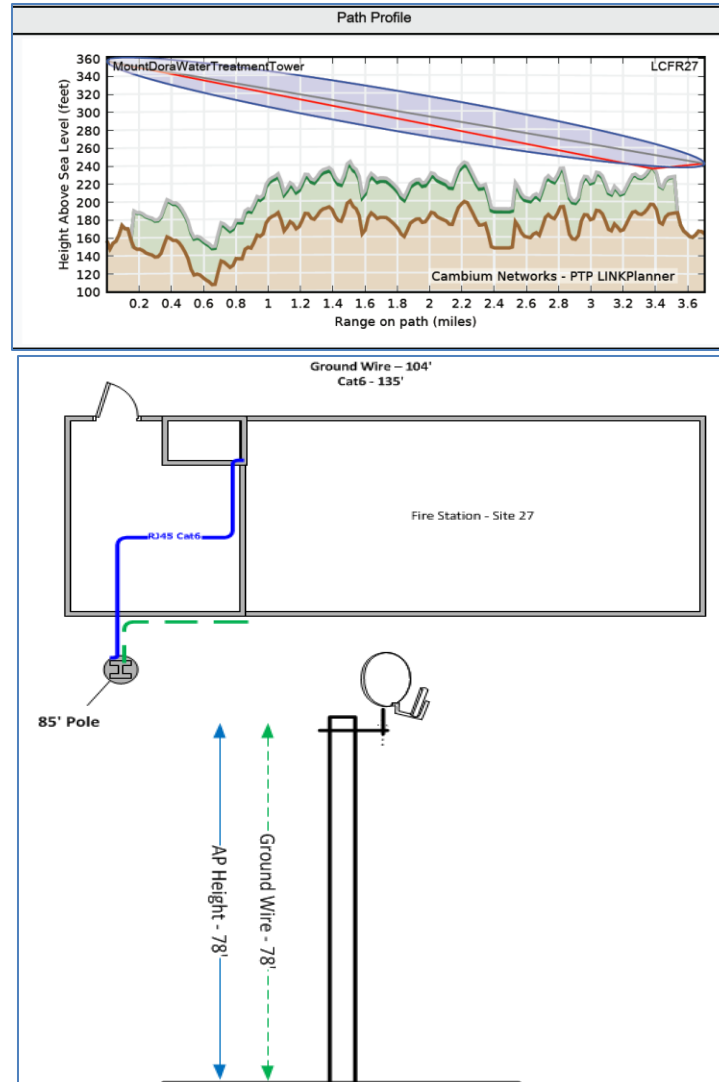
1. MDWT Tower site installation specifications:
 - a. One PTP450 60 degree Access Points will be install
 - b. Each Access Point will be grounded to existing tower ground bus bar following manufacturer guidelines and Motorola R56 Standards and Guidelines for communications sites
 - c. A Cambium 600SS surge arrestor will be top mounted at antenna location and building entry point – each arrestor will be grounded to existing ground bus bar



Antenna Downtilt Angle

Base Antenna	<input type="text" value="210"/>	Remote Antenna	<input type="text" value="60"/>
Height (Feet)		Height (Feet)	
Distance (Miles)	<input type="text" value="4"/>	Downtilt Angle (°)	<input type="text" value="0.4069234"/>
<input type="button" value="Submit"/>			

2.6.1 Remote Site – LCFR 27

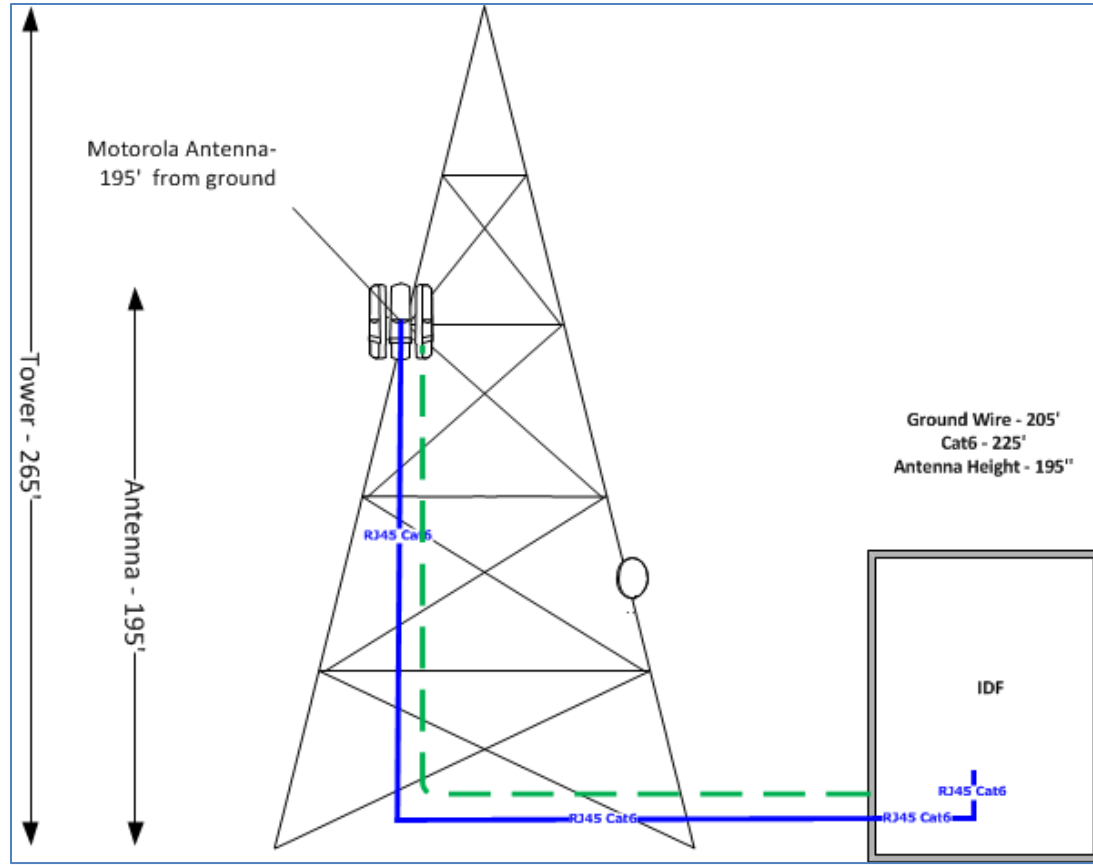


Name	Latitude	Longitude
LCFR 27	28.84740N	081.63327W

Antenna Height	78'
Cat6 Length Est.	135'
Ground Wire Est.	104'
To Tower	MDWT
Distance to Tower	3.704 miles
Left Bearing	351.7
Right Bearing	171.6

1. LCFR 27 site installation specifications:
 - a. One PTP450 Subscriber unit will be install with a reflector plate
 - b. Align antenna
 - c. Install a 89' direct burial pole
 - d. Ground pole using Motorola R56 Grounding standards and install lightning dissipation system
 - e. Install a ground bus bar at building entry point
 - f. Each Subscriber unit will be grounded to new ground rods following manufacturer guidelines and Motorola R56 Standards and Guidelines for communications sites
 - g. A Cambium 600SS surge arrestor will be top mounted at antenna location and building entry point – each arrestor will be grounded to ground rod and new building bus bar

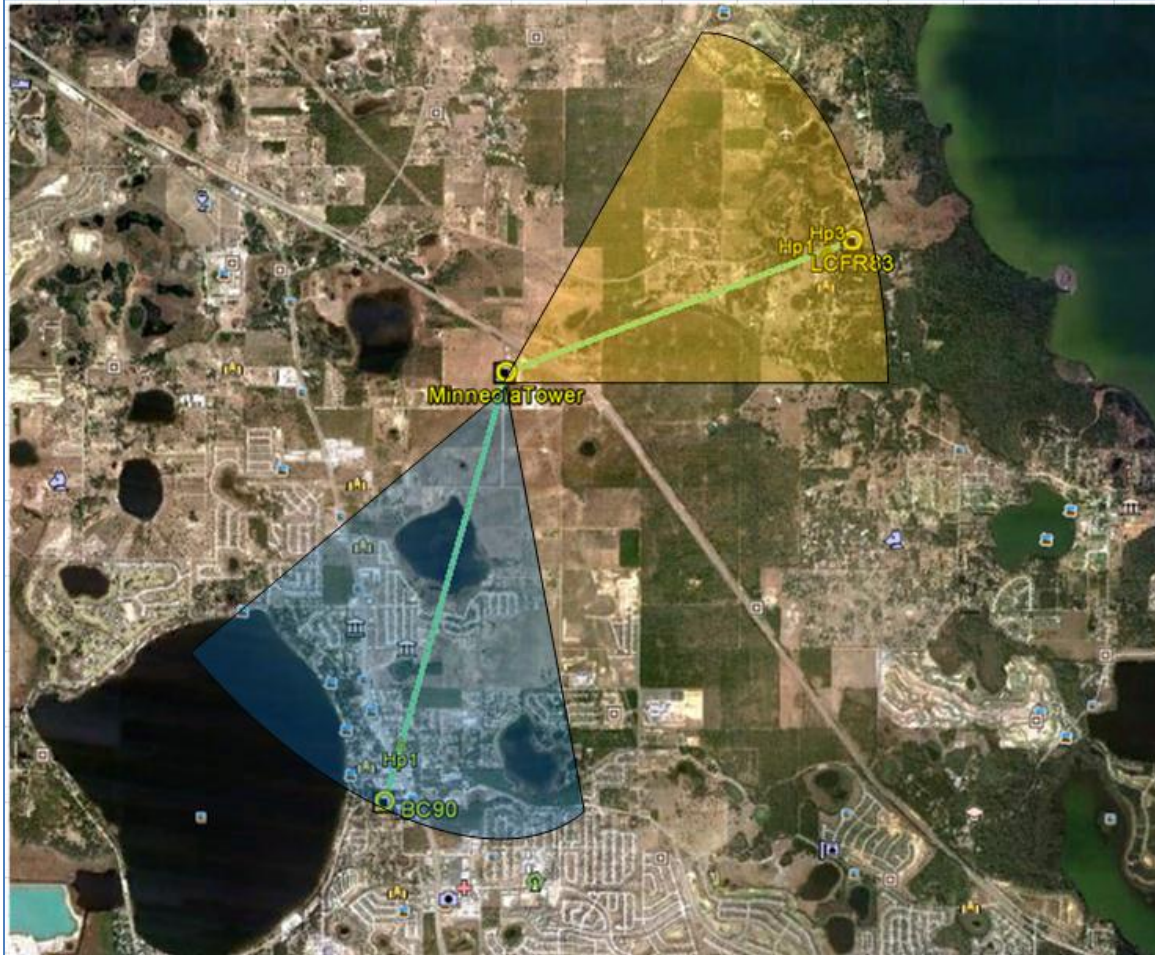
2.7 Tower Site – Minneola Tower



Name	Latitude	Longitude
Minneola	28.611736N	81.737136W

Antenna Height	195'
Cat6 Length Est.	225'
Ground Wire Est.	25'

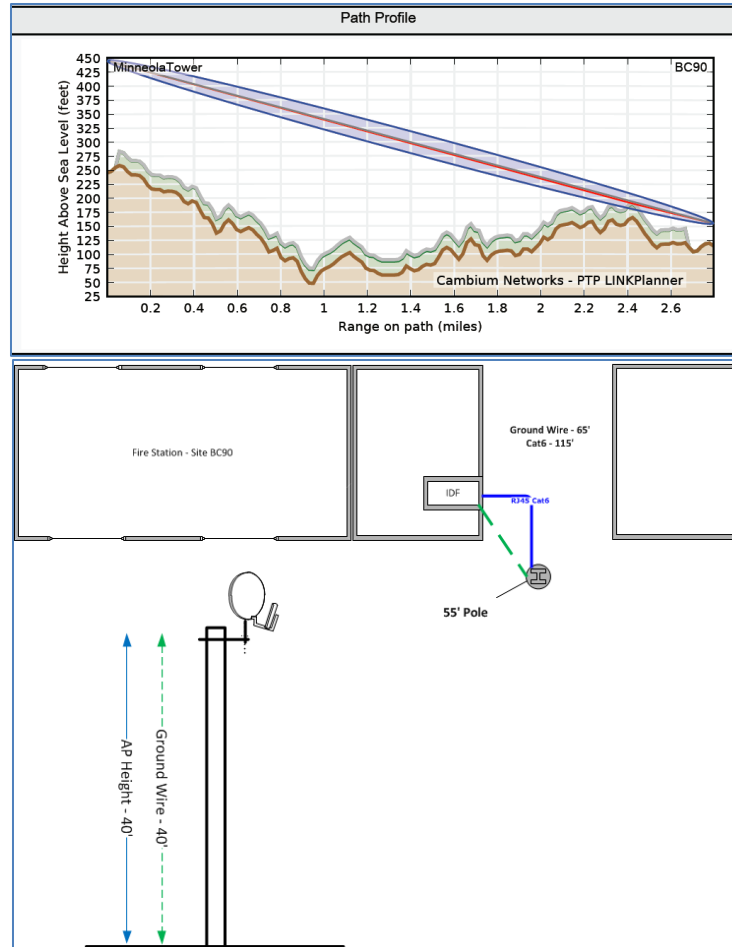
1. Minneola Tower site installation specifications:
 - a. Two PTP450 60 degree Access Points will be install
 - b. Each Access Point will be grounded to existing tower ground bus bar following manufacturer guidelines and Motorola R56 Standards and Guidelines for communications sites
 - c. A Cambium 600SS surge arrestor will be top mounted at antenna location and building entry point – each arrestor will be grounded to existing ground bus bar



Antenna Downtilt Angle

Base	Antenna	<input type="text" value="195"/>	Remote	Antenna	<input type="text" value="50"/>
Height (Feet)			Height (Feet)		
Distance (Miles)		<input type="text" value="4"/>	Downtilt Angle (°)		<input type="text" value="0.3933597"/>

2.7.1 Remote Site – BC90

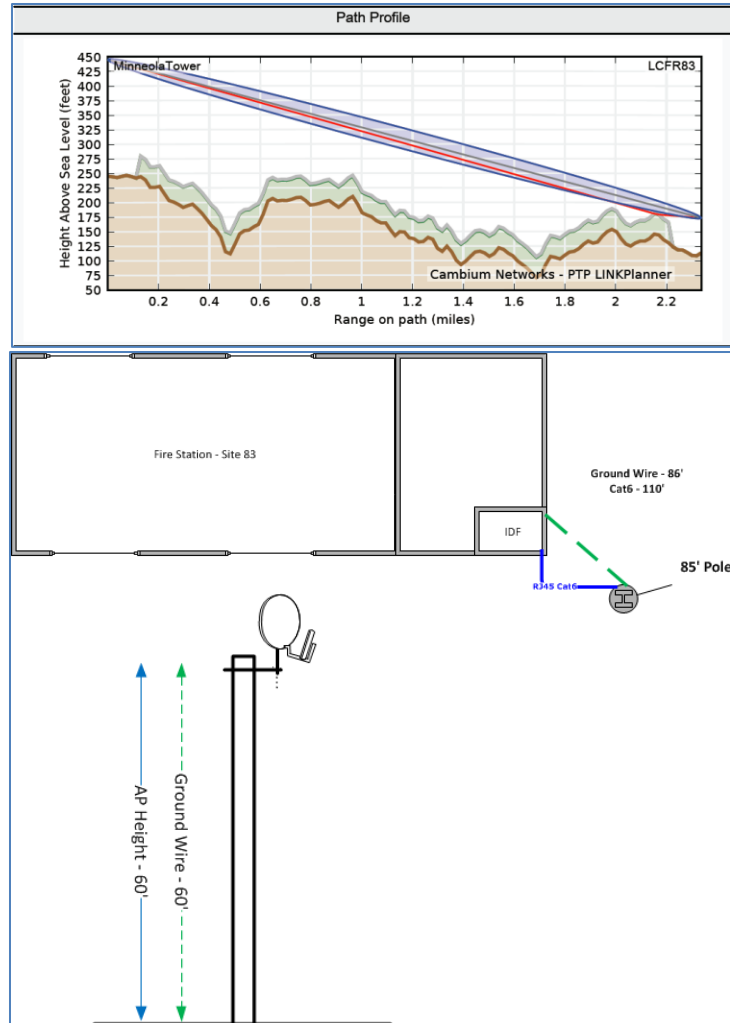


Name	Latitude	Longitude
BC 90	28.57270N	081.74973W

Antenna Height	40'
Cat6 Length Est.	115'
Ground Wire Est.	65'
To Tower	Minneola Tower
Distance to Tower	2.795 miles
Left Bearing	195.9
Right Bearing	15.9

1. BC 90 site installation specifications:
 - a. One PTP450 Subscriber unit will be install with a reflector plate
 - b. Align antenna
 - c. Install a 55' direct burial pole
 - d. Ground pole using Motorola R56 Grounding standards and install lightning dissipation system
 - e. Install a ground bus bar at building entry point
 - f. Each Subscriber unit will be grounded to new ground rods following manufacturer guidelines and Motorola R56 Standards and Guidelines for communications sites
 - g. A Cambium 600SS surge arrestor will be top mounted at antenna location and building entry point – each arrestor will be grounded to ground rod and new building bus bar

2.7.2 Remote Site – LCFR 83

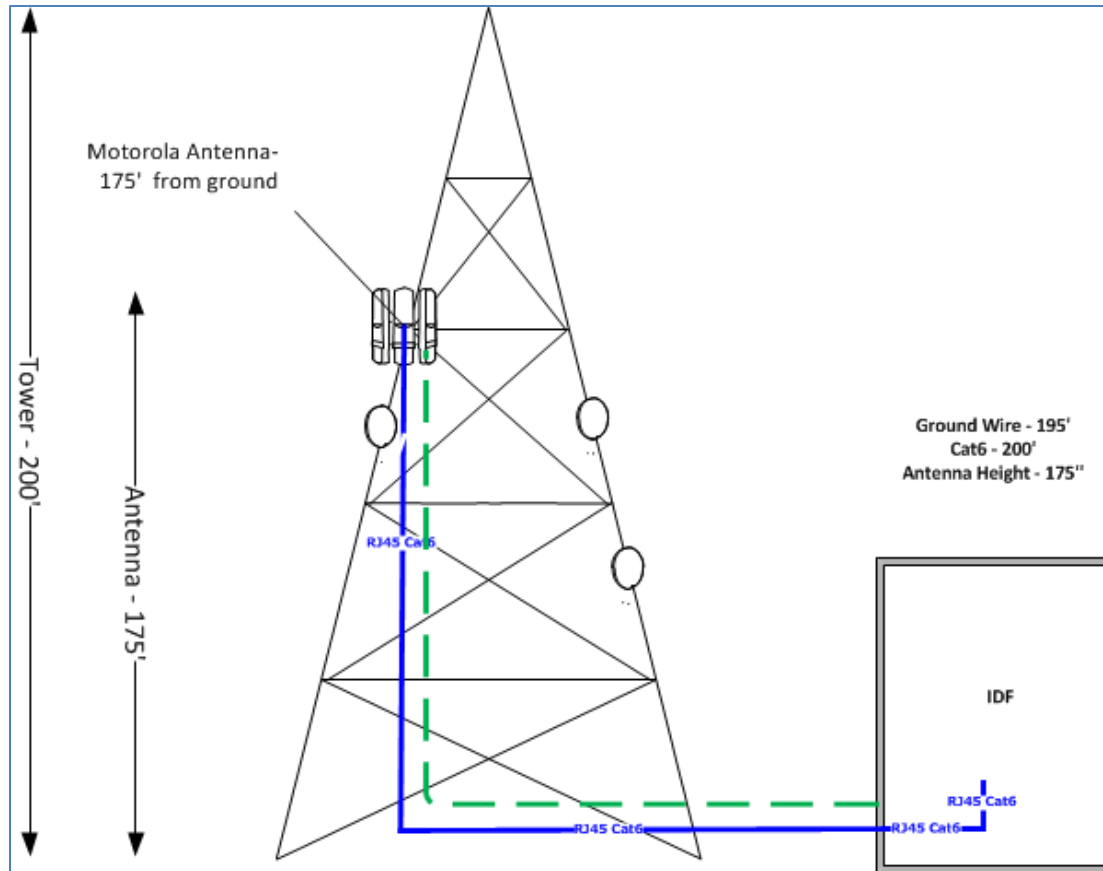


Name	Latitude	Longitude
LCFR 83	28.62378N	081.70118W

Antenna Height	60'
Cat6 Length Est.	110'
Ground Wire Est.	86'
To Tower	Minneola Tower
Distance to Tower	2.337 miles
Left Bearing	69.2
Right Bearing	249.2

1. LCFR 83 site installation specifications:
 - a. One PTP450 Subscriber unit will be install with a reflector plate
 - b. Align antenna
 - c. Install a 89' direct burial pole
 - d. Ground pole using Motorola R56 Grounding standards and install lightning dissipation system
 - e. Install a ground bus bar at building entry point
 - f. Each Subscriber unit will be grounded to new ground rods following manufacturer guidelines and Motorola R56 Standards and Guidelines for communications sites
 - g. A Cambium 600SS surge arrestor will be top mounted at antenna location and building entry point – each arrestor will be grounded to ground rod and new building bus bar

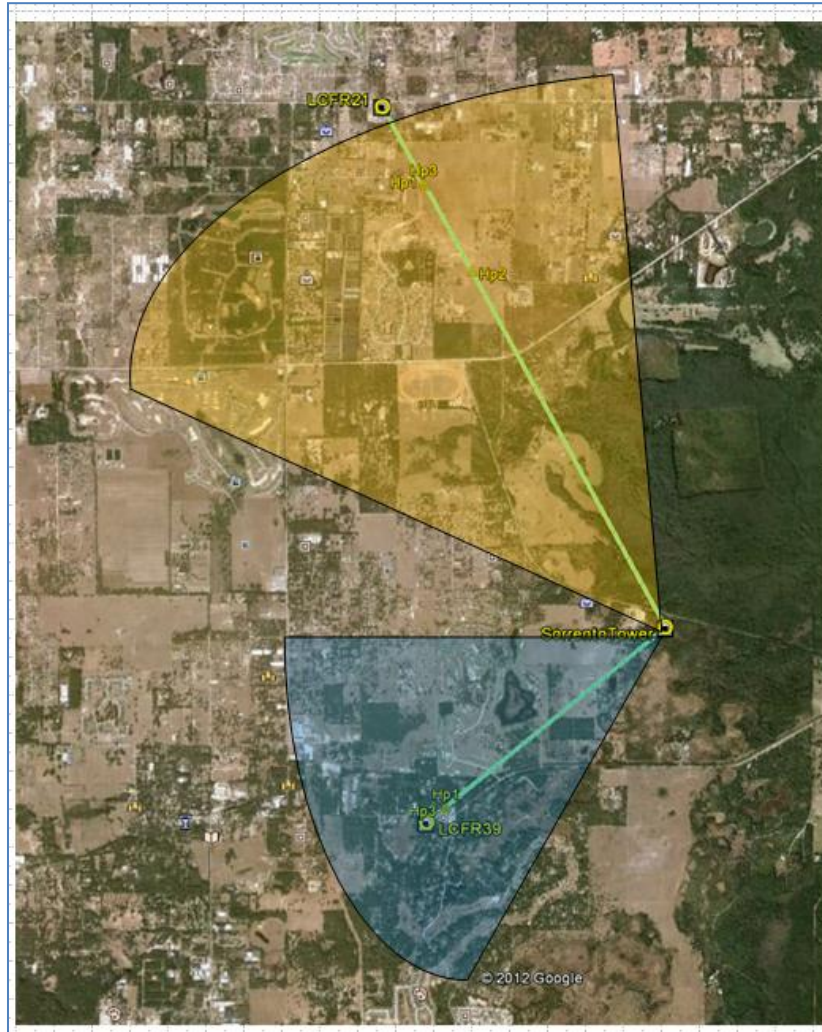
2.8 Tower Site – Sorrento Tower



Name	Latitude	Longitude
Sorrento	28.826222N	81.509889W

Antenna Height	175'
Cat6 Length Est.	200'
Ground Wire Est.	25'

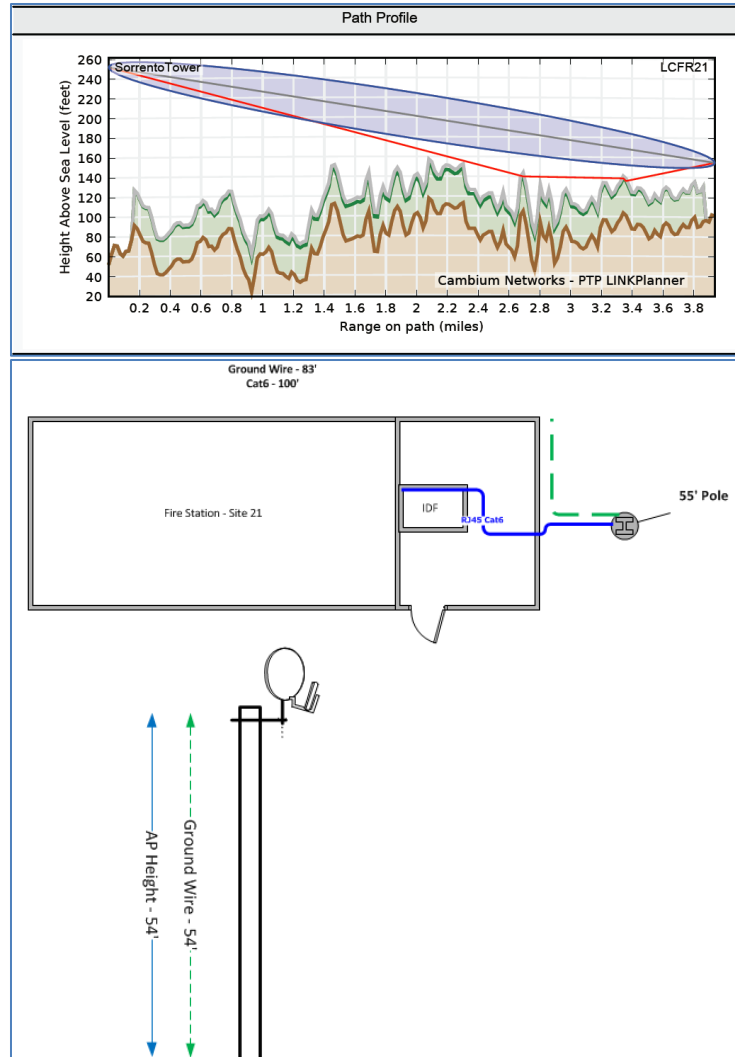
1. Sorrento Tower site installation specifications:
 - a. Two PTP450 60 degree Access Points will be install
 - b. Each Access Point will be grounded to existing tower ground bus bar following manufacturer guidelines and Motorola R56 Standards and Guidelines for communications sites
 - c. A Cambium 600SS surge arrestor will be top mounted at antenna location and building entry point – each arrestor will be grounded to existing ground bus bar.



Antenna Downtilt Angle

Base	Antenna	175	Remote	Antenna	55
Height (Feet)			Height (Feet)		
Distance (Miles)		4	Downtilt Angle (°)		0.3255406

2.8.1 Remote Site – LCFR 21

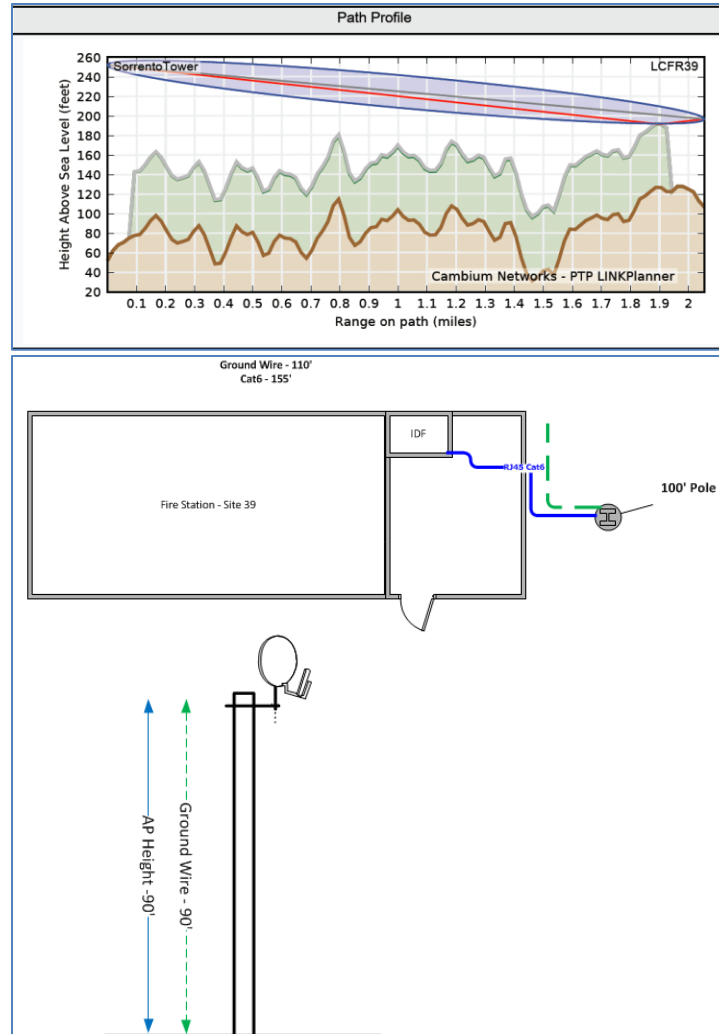


Name	Latitude	Longitude
LCFR 21	28.87639N	081.54098W

Antenna Height	54'
Cat6 Length Est.	100'
Ground Wire Est.	83'
To Tower	Sorrento Tower
Distance to Tower	3.936 miles
Left Bearing	331.4
Right Bearing	151.4

1. LCFR 21 site installation specifications:
 - a. One PTP450 Subscriber unit will be install with a reflector plate
 - b. Align antenna
 - c. Install a 55' direct burial pole
 - d. Extend pole to antenna mounting height using a 2" Sch40 pipe
 - e. Ground pole using Motorola R56 Grounding standards and install lightning dissipation system
 - f. Install a ground bus bar at building entry point
 - g. Each Subscriber unit will be grounded to new ground rods following manufacturer guidelines and Motorola R56 Standards and Guidelines for communications sites
 - h. A Cambium 600SS surge arrestor will be top mounted at antenna location and building entry point – each arrestor will be grounded to ground rod and new building bus bar

2.8.2 Remote Site – LCFR 39

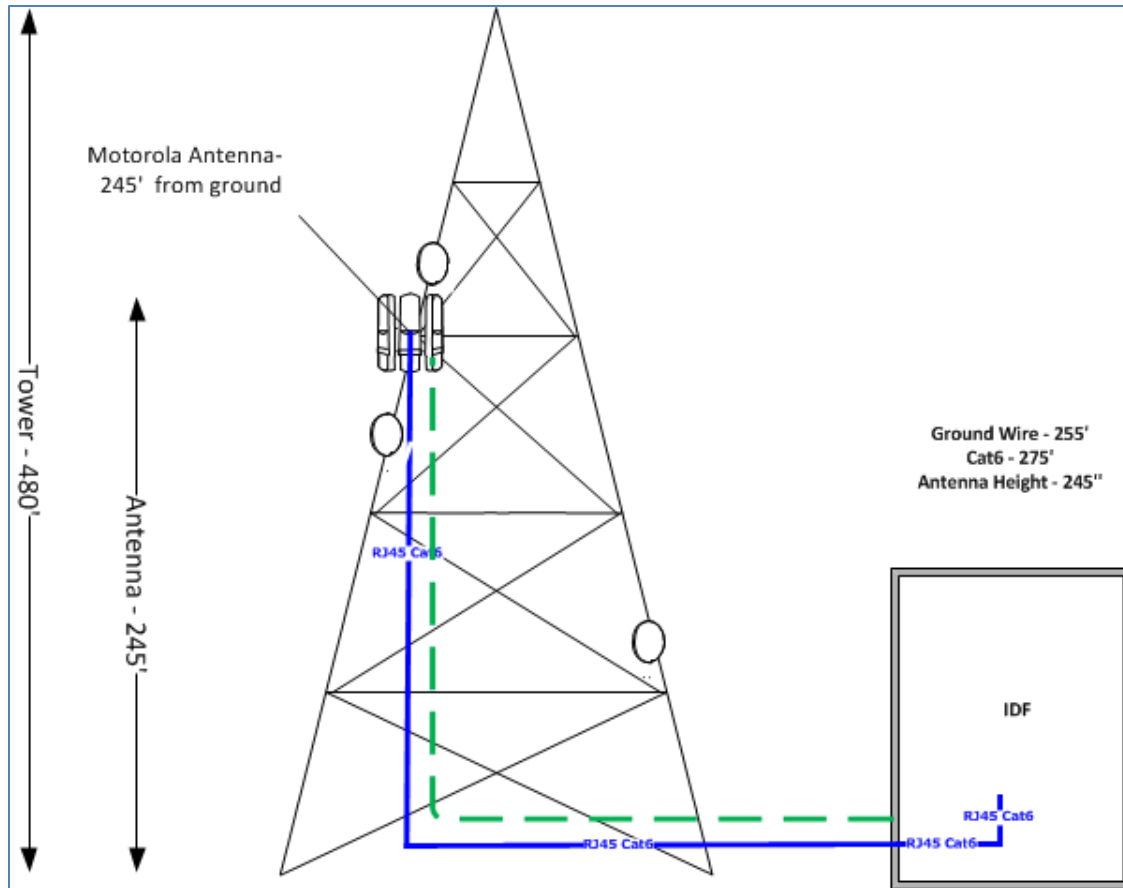


Name	Latitude	Longitude
LCFR 39	28.80746N	081.53621W

Antenna Height	90'
Cat6 Length Est.	155'
Ground Wire Est.	110'
To Tower	Sorrento Tower
Distance to Tower	2.054 miles
Left Bearing	231
Right Bearing	51

1. LCFR 21 site installation specifications:
 - a. One PTP450 Subscriber unit will be install with a reflector plate
 - b. Align antenna
 - c. Install a 89' direct burial pole
 - d. Extend pole to antenna mounting height using a 2" Sch40 pipe
 - e. Ground pole using Motorola R56 Grounding standards and install lightning dissipation system
 - f. Install a ground bus bar at building entry point
 - g. Each Subscriber unit will be grounded to new ground rods following manufacturer guidelines and Motorola R56 Standards and Guidelines for communications sites
 - h. A Cambium 600SS surge arrestor will be top mounted at antenna location and building entry point – each arrestor will be grounded to ground rod and new building bus bar

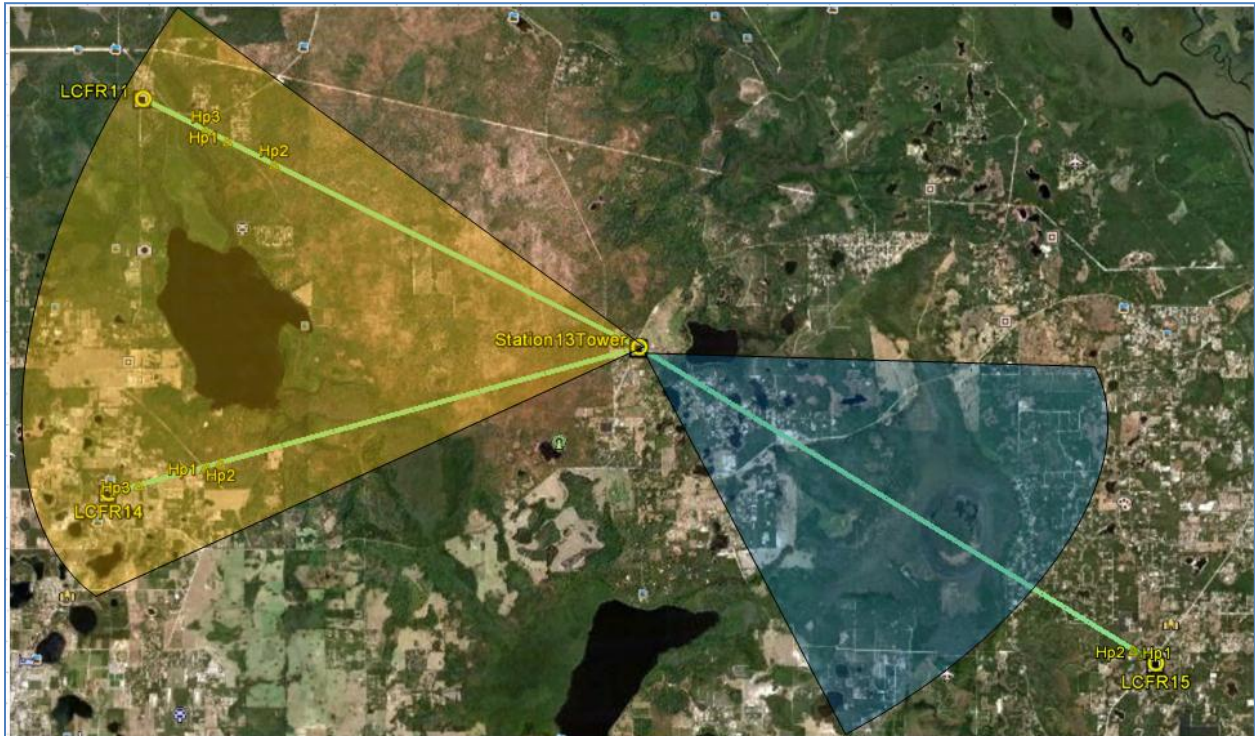
2.9 Tower Site – Station 13 Tower



Name	Latitude	Longitude
Station 13	28.996672N	81.537108W

Antenna Height	245'
Cat6 Length Est.	275'
Ground Wire Est.	25'

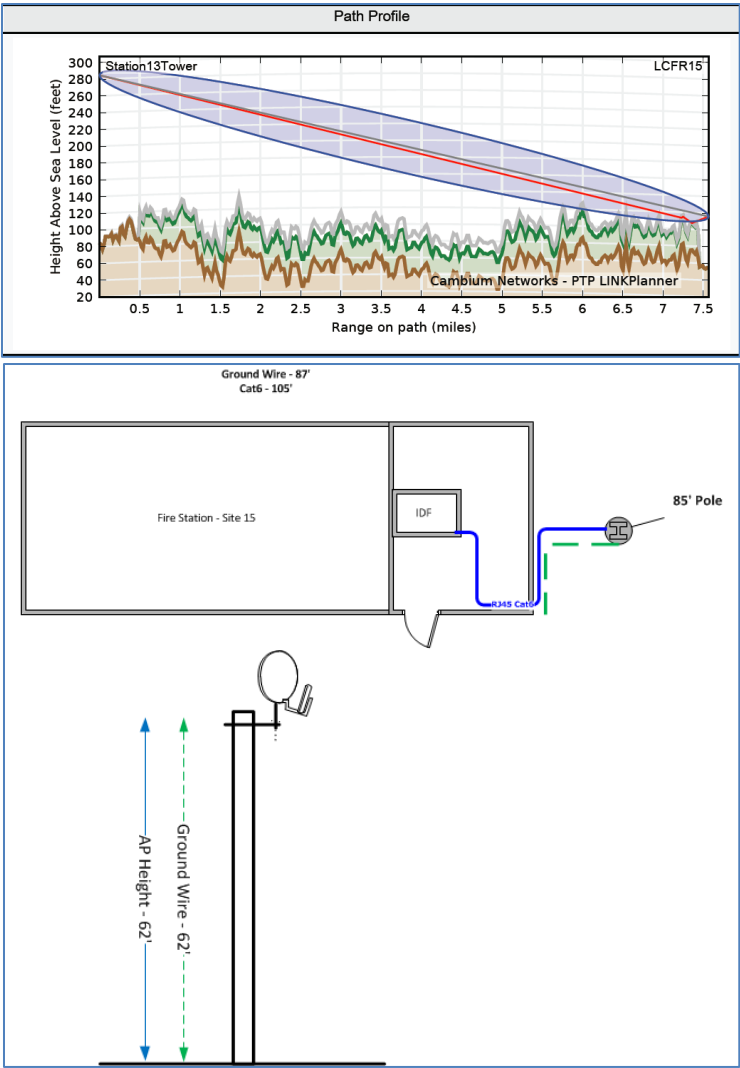
1. Station 13 Tower site installation specifications:
 - a. Two PTP450 60 degree Access Points will be install
 - b. Each Access Point will be grounded to existing tower ground bus bar following manufacturer guidelines and Motorola R56 Standards and Guidelines for communications sites
 - c. A Cambium 600SS surge arrestor will be top mounted at antenna location and building entry point – each arrestor will be grounded to existing ground bus bar



Antenna Downtilt Angle

Base Antenna	<input type="text" value="245"/>	Remote Antenna	<input type="text" value="65"/>
Height (Feet)		Height (Feet)	
Distance (Miles)	<input type="text" value="9"/>	Downtilt Angle (°)	<input type="text" value="0.2170284"/>

2.9.1 Remote Site – LCFR 15

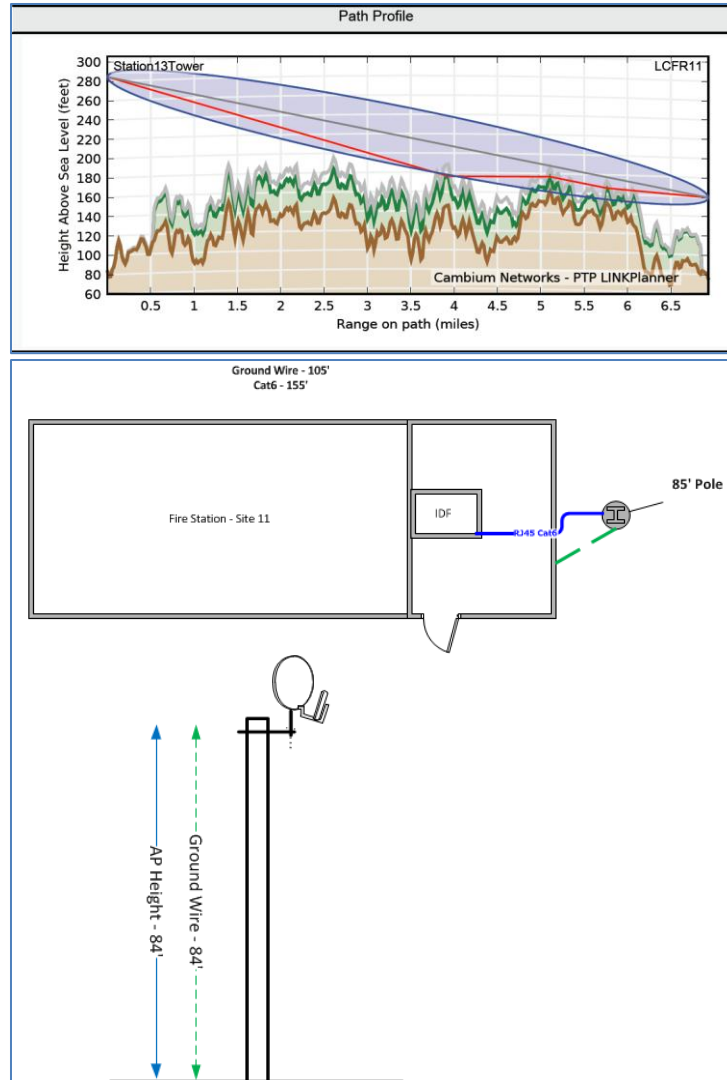


Name	Latitude	Longitude
LCFR 15	28.93944N	081.43049W

Antenna Height	62'
Cat6 Length Est.	105'
Ground Wire Est.	87'
To Tower	Station 13 Tower
Distance to Tower	7.565 miles
Left Bearing	121.4
Right Bearing	301.4

1. LCFR 15 site installation specifications:
 - a. One PTP450 Subscriber unit will be install with a reflector plate
 - b. Align antenna
 - c. Install a 89' direct burial pole
 - d. Ground pole using Motorola R56 Grounding standards and install lightning dissipation system
 - e. Install a ground bus bar at building entry point
 - f. Each Subscriber unit will be grounded to new ground rods following manufacturer guidelines and Motorola R56 Standards and Guidelines for communications sites
 - g. A Cambium 600SS surge arrestor will be top mounted at antenna location and building entry point – each arrestor will be grounded to ground rod and new building bus bar

2.9.2 Remote Site – LCFR 11

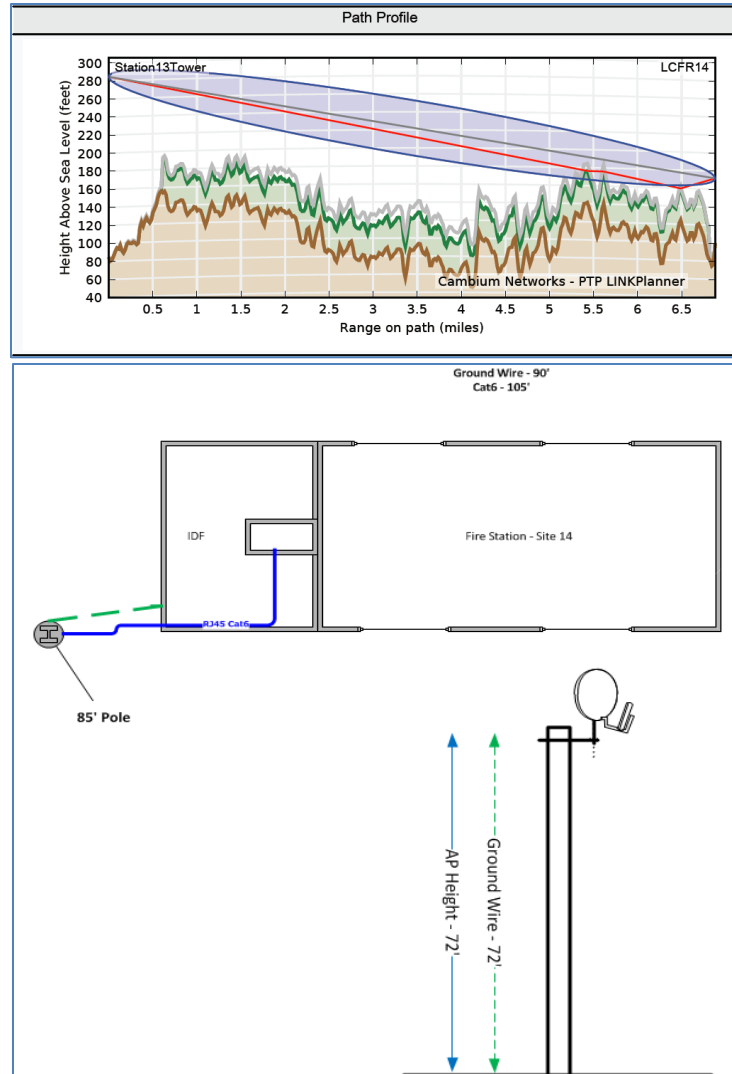


Name	Latitude	Longitude
LCFR 11	29.04161N	081.63961W

Antenna Height	84'
Cat6 Length Est.	155'
Ground Wire Est.	105'
To Tower	Station 13 Tower
Distance to Tower	6.934 miles
Left Bearing	296.5
Right Bearing	116.5

1. LCFR 11 site installation specifications:
 - a. One PTP450 Subscriber unit will be install with a reflector plate
 - b. Align antenna
 - c. Install a 89' direct burial pole
 - d. Extend pole to antenna mounting height using a 2" Sch40 pipe
 - e. Ground pole using Motorola R56 Grounding standards and install lightning dissipation system
 - f. Install a ground bus bar at building entry point
 - g. Each Subscriber unit will be grounded to new ground rods following manufacturer guidelines and Motorola R56 Standards and Guidelines for communications sites
 - h. A Cambium 600SS surge arrestor will be top mounted at antenna location and building entry point – each arrestor will be grounded to ground rod and new building bus bar

2.9.3 Remote Site – LCFR 14



Name	Latitude	Longitude
LCFR 14	28.97045N	081.64673W

Antenna Height	72'
Cat6 Length Est.	105'
Ground Wire Est.	90'
To Tower	Station 13 Tower
Distance to Tower	6.879 miles
Left Bearing	254.8
Right Bearing	74.8

1. LCFR 14 site installation specifications:
 - a. One PTP450 Subscriber unit will be install with a reflector plate
 - b. Align antenna
 - c. Install a 89' direct burial pole
 - d. Extend pole to antenna mounting height using a 2" Sch40 pipe
 - e. Ground pole using Motorola R56 Grounding standards and install lightning dissipation system
 - f. Install a ground bus bar at building entry point
 - g. Each Subscriber unit will be grounded to new ground rods following manufacturer guidelines and Motorola R56 Standards and Guidelines for communications sites
 - h. A Cambium 600SS surge arrestor will be top mounted at antenna location and building entry point – each arrestor will be grounded to ground rod and new building bus bar

3.0 SPECTRUM ANALYSIS

Presidio used the Cisco Spectrum Expert tool for identifying any sources of noise or interference detected during the survey and to assist in determining a channel plan for the proposed wireless network. Only valid sources of noise or interference will be reported.

The presence of interference signals can degrade the performance of the RF network. During the site survey, the performance of the RF equipment is observed in order to determine if any signs of RF interference are present. Common sources of interference may include but are not limited to; microwave ovens, cordless telephones, Bluetooth headsets, and other RF systems. Attempts are made during the survey process to identify and accommodate these types of devices. However, devices not in operation during the survey may not be detected during the survey process. Any introduction, change in location, operation, or shielding of this type of equipment or in the physical environment itself may invalidate the recommendations made in this report or completely prohibit use of RF equipment.

The snapshots taken of possible interfering devices found at each remote location are listed below. Although much of the interference detected at each site was on the 2.4 GHz spectrums, this wireless deployment will be fully utilizing the 5 GHz band.

3.1 Site – BC90

Devices: Currently Active, All Channels

Device *	Signal Strength (dBm)	Duty Cycle (%) * 10	Discovery Time	On Time	Channels Affected	Network ID	Device ID
Wi-Fi APs (In-Network) [25]							
(00:0B:85:2C:51:1F) (Ch 11)	-63.0		Thu Oct 04 11:13...	00:01:00	8..13	00:0B:85:2C:51:1F	00:0B:85:2C:51:1F
(00:17:9A:25:59:8A) (Ch 1)	-90.0		Thu Oct 04 11:13...	00:00:30	1..2	00:17:9A:25:59:8A	00:17:9A:25:59:8A
abikarram (Ch 1)	-80.0		Thu Oct 04 11:14...	00:00:00	1..4	0C:60:76:43:8F:E8	0C:60:76:43:8F:E8
allinone (Ch 11)	-80.0		Thu Oct 04 11:14...	00:00:00	8..13	58:6D:8F:3E:2F:F4	58:6D:8F:3E:2F:F4
allinone-guest (Ch 11)	-82.0		Thu Oct 04 11:13...	00:00:30	8..13	58:6D:8F:3E:2F:F6	58:6D:8F:3E:2F:F6
belkin.3632 (Ch 9)	-89.0		Thu Oct 04 11:12...	00:01:45	8..10	94:44:52:BD:73:51	94:44:52:BD:73:51
belkin.3ef9 (Ch 1)	-78.0		Thu Oct 04 11:05...	00:08:30	1..3	94:44:52:AB:CE:F0	94:44:52:AB:CE:F0
Boykin_Office (Ch 6)	-76.0		Thu Oct 04 11:13...	00:00:45	3..9	00:23:69:ED:D8:31	00:23:69:ED:D8:31
C-Hawks (Ch 1)	-89.0		Thu Oct 04 11:14...	00:00:00	1..2	5C:D9:98:5C:73:78	5C:D9:98:5C:73:78
dci-p2688 (Ch 8)	-76.0		Thu Oct 04 11:09...	00:05:00	6..10	00:15:6D:E4:82:03	00:15:6D:E4:82:03
Don't F with my shit! (Ch 6)	-65.0		Thu Oct 04 11:12...	00:01:15	3..9	00:18:F8:C3:63:E9	00:18:F8:C3:63:E9
fuqua (Ch 11)	-82.0		Thu Oct 04 11:11...	00:02:45	9..13	20:4E:7F:C2:52:B4	20:4E:7F:C2:52:B4
greenswireless1_EXT (Ch 9)	-89.0		Thu Oct 04 11:14...	00:00:00	8..10	84:1B:5E:32:B7:E8	84:1B:5E:32:B7:E8
Jeff Rogers Network (Ch 1)	-89.0		Thu Oct 04 11:13...	00:00:15	1..2	58:6D:8F:C1:7E:4A	58:6D:8F:C1:7E:4A
linksys (Ch 6)	-68.0		Thu Oct 04 11:05...	00:08:30	4..8	00:25:9C:77:F2:A3	00:25:9C:77:F2:A3
maria (Ch 11)	-75.0		Thu Oct 04 11:06...	00:07:45	8..13	00:24:B2:B6:89:40	00:24:B2:B6:89:40
Master Key Media (Ch 3)	-79.0		Thu Oct 04 11:14...	00:00:00	1..6	28:10:7B:55:1F:1E	28:10:7B:55:1F:1E
QuietMagnolia (Ch 11)	-80.0		Thu Oct 04 11:14...	00:00:00	8..13	68:7F:74:53:DF:6D	68:7F:74:53:DF:6D
Shadow (Ch 1)	-89.0		Thu Oct 04 11:14...	00:00:00	1..2	64:27:37:42:E6:D6	64:27:37:42:E6:D6
VIRUS (Ch 6)	-89.0		Thu Oct 04 11:14...	00:00:00	5..7	00:1E:2A:5E:BA:D6	00:1E:2A:5E:BA:D6
WELCOME (Ch 11)	-57.0		Thu Oct 04 11:05...	00:08:30	8..13	00:0B:85:2C:51:1E	00:0B:85:2C:51:1E
westell4011 (Ch 6)	-77.0		Thu Oct 04 11:07...	00:07:00	4..8	0C:D5:02:23:1E:DB	0C:D5:02:23:1E:DB
WIFI021610 (Ch 11)	-89.0		Thu Oct 04 11:14...	00:00:00	10..12	00:26:F2:7D:DE:A8	00:26:F2:7D:DE:A8
WLCBCC (Ch 11)	-57.0		Thu Oct 04 11:05...	00:08:30	8..13	00:0B:85:2C:51:1A	00:0B:85:2C:51:1A
WLCBCC (Ch 149)	-83.0		Thu Oct 04 11:05...	00:08:30	149	00:0B:85:2C:51:15	00:0B:85:2C:51:15

5 GHz interference

Device	Channel
WLCBCC	149

3.2 Site – LCFR 11

Devices: Last Day, All Channels

Device *	Signal Strength (dBm)	Duty Cycle (%) * ¹	Discovery Time	On Time	Channels Affected	Network ID	Device ID
[-] Wi-Fi APs (In-Network) [41]							
belkin.31a (Ch 1)	-59.0		Mon Oct 01 14:2...	00:08:45	1..4	08:86:3B:19:A3:1A	08:86:3B:19:A3:1A
belkin.31a (Ch 1)	-80.0		Mon Oct 01 14:1...	00:00:46 (Down)	1..4	08:86:3B:19:A3:1A	08:86:3B:19:A3:1A
CenturyLink9918 (Ch 1)	-89.0		Mon Oct 01 14:2...	00:01:30	1..2	B2:B2:DC:1C:C1:48	B2:B2:DC:1C:C1:48
CenturyLink9918 (Ch 1)	-87.0		Mon Oct 01 14:2...	00:00:19 (Down)	1..3	B2:B2:DC:1C:C1:48	B2:B2:DC:1C:C1:48
Hughes net (Ch 10)	-89.0		Mon Oct 01 14:2...	00:00:00	9..11	0C:D5:02:54:8F:8B	0C:D5:02:54:8F:8B
Hughes net (Ch 10)	-85.0		Mon Oct 01 14:2...	00:04:12 (Down)	9..11	0C:D5:02:54:8F:8B	0C:D5:02:54:8F:8B
Hughes net (Ch 10)	-86.0		Mon Oct 01 14:2...	00:00:37 (Down)	8..12	0C:D5:02:54:8F:8B	0C:D5:02:54:8F:8B
Hughes net (Ch 10)	-88.0		Mon Oct 01 14:2...	00:00:19 (Down)	8..12	0C:D5:02:54:8F:8B	0C:D5:02:54:8F:8B
Hughes net (Ch 10)	-89.0		Mon Oct 01 14:2...	00:00:19 (Down)	9..11	0C:D5:02:54:8F:8B	0C:D5:02:54:8F:8B
Hughes net (Ch 10)	-87.0		Mon Oct 01 14:2...	00:00:19 (Down)	8..12	0C:D5:02:54:8F:8B	0C:D5:02:54:8F:8B
Saunders (Ch 6)	-71.0		Mon Oct 01 14:1...	00:09:30	5..7	0C:D5:02:61:2D:A3	0C:D5:02:61:2D:A3
Stay-The-Fuck-Off-Of-My-N...	-86.0		Mon Oct 01 14:2...	00:00:00	4..8	00:1E:2A:DE:A8:EA	00:1E:2A:DE:A8:EA
Stay-The-Fuck-Off-Of-My-N...	-86.0		Mon Oct 01 14:2...	00:00:38 (Down)	4..8	00:1E:2A:DE:A8:EA	00:1E:2A:DE:A8:EA
TerriGoldber-PC-Wireless (C...	-84.0		Mon Oct 01 14:2...	00:00:19 (Down)	1..3	00:26:F2:77:29:1C	00:26:F2:77:29:1C
TerriGoldber-PC-Wireless (C...	-90.0		Mon Oct 01 14:2...	00:00:47 (Down)	1..2	00:26:F2:77:29:1C	00:26:F2:77:29:1C
TerriGoldber-PC-Wireless (C...	-89.0		Mon Oct 01 14:2...	00:00:37 (Down)	1..2	00:26:F2:77:29:1C	00:26:F2:77:29:1C
westell3570 (Ch 6)	-72.0		Mon Oct 01 14:2...	00:02:15	3..9	0C:D5:02:41:B3:EC	0C:D5:02:41:B3:EC
westell3570 (Ch 6)	-82.0		Mon Oct 01 14:2...	00:00:47 (Down)	4..8	0C:D5:02:41:B3:EC	0C:D5:02:41:B3:EC
westell3570 (Ch 6)	-84.0		Mon Oct 01 14:2...	00:00:47 (Down)	4..8	0C:D5:02:41:B3:EC	0C:D5:02:41:B3:EC
westell3570 (Ch 6)	-88.0		Mon Oct 01 14:2...	00:00:56 (Down)	4..8	0C:D5:02:41:B3:EC	0C:D5:02:41:B3:EC
westell3570 (Ch 6)	-86.0		Mon Oct 01 14:2...	00:00:19 (Down)	4..8	0C:D5:02:41:B3:EC	0C:D5:02:41:B3:EC
westell3570 (Ch 6)	-88.0		Mon Oct 01 14:2...	00:00:18 (Down)	4..8	0C:D5:02:41:B3:EC	0C:D5:02:41:B3:EC
westell3570 (Ch 6)	-78.0		Mon Oct 01 14:1...	00:01:14 (Down)	3..9	0C:D5:02:41:B3:EC	0C:D5:02:41:B3:EC
westell4134 (Ch 6)	-77.0		Mon Oct 01 14:2...	00:01:00	3..9	74:44:01:A4:9A:48	74:44:01:A4:9A:48
westell4134 (Ch 6)	-79.0		Mon Oct 01 14:2...	00:01:15 (Down)	4..8	74:44:01:A4:9A:48	74:44:01:A4:9A:48
westell4134 (Ch 6)	-85.0		Mon Oct 01 14:2...	00:00:19 (Down)	4..8	74:44:01:A4:9A:48	74:44:01:A4:9A:48
westell5017 (Ch 6)	-77.0		Mon Oct 01 14:2...	00:00:30	3..9	0C:D5:02:A8:19:F1	0C:D5:02:A8:19:F1
westell5017 (Ch 6)	-74.0		Mon Oct 01 14:2...	00:07:01 (Down)	3..9	0C:D5:02:A8:19:F1	0C:D5:02:A8:19:F1
westell5017 (Ch 6)	-77.0		Mon Oct 01 14:1...	00:01:42 (Down)	3..9	0C:D5:02:A8:19:F1	0C:D5:02:A8:19:F1
westell8032 (Ch 6)	-86.0		Mon Oct 01 14:2...	00:00:00	4..8	0C:D5:02:4C:45:29	0C:D5:02:4C:45:29
westell9523 (Ch 6)	-88.0		Mon Oct 01 14:2...	00:00:00	4..8	74:44:01:AB:A8:44	74:44:01:AB:A8:44
westell9523 (Ch 6)	-86.0		Mon Oct 01 14:2...	00:00:19 (Down)	4..8	74:44:01:AB:A8:44	74:44:01:AB:A8:44
westell9523 (Ch 6)	-82.0		Mon Oct 01 14:2...	00:00:19 (Down)	3..9	74:44:01:AB:A8:44	74:44:01:AB:A8:44
westell9523 (Ch 6)	-86.0		Mon Oct 01 14:2...	00:01:43 (Down)	4..8	74:44:01:AB:A8:44	74:44:01:AB:A8:44
westell9523 (Ch 6)	-89.0		Mon Oct 01 14:2...	00:00:37 (Down)	5..7	74:44:01:AB:A8:44	74:44:01:AB:A8:44
westell9523 (Ch 6)	-86.0		Mon Oct 01 14:2...	00:01:43 (Down)	4..8	74:44:01:AB:A8:44	74:44:01:AB:A8:44
westell9523 (Ch 6)	-85.0		Mon Oct 01 14:1...	00:01:05 (Down)	4..8	74:44:01:AB:A8:44	74:44:01:AB:A8:44
westell9523_EXT (Ch 6)	-83.0		Mon Oct 01 14:2...	00:01:00	4..8	7A:44:01:8C:E3:9E	7A:44:01:8C:E3:9E
westell9523_EXT (Ch 6)	-76.0		Mon Oct 01 14:1...	00:07:56 (Down)	3..9	7A:44:01:8C:E3:9E	7A:44:01:8C:E3:9E
ZyXEL_222 (Ch 6)	-87.0		Mon Oct 01 14:2...	00:00:19 (Down)	4..8	40:4A:03:BC:C2:22	40:4A:03:BC:C2:22
ZyXEL_222 (Ch 6)	-90.0		Mon Oct 01 14:2...	00:01:43 (Down)	4..8	40:4A:03:BC:C2:22	40:4A:03:BC:C2:22

3.3 Site – LCFR 14

Devices: Last Day, All Channels

Device *	Signal Strength (dBm)	Duty Cycle (%) * 1/2	Discovery Time	On Time	Channels Affected	Network ID	Device ID
[-] Wi-Fi APs (In-Network) [31]							
AES-11 (Ch 3)	-82.0		Mon Oct 01 13:4...	00:00:18 (Down)	1..6	1C:AF:F7:D3:D3:6F	1C:AF:F7:D3:D3:6F
AES-16 (Ch 2)	-80.0		Mon Oct 01 13:4...	00:00:18 (Down)	1..5	1C:7E:E5:30:C9:C4	1C:7E:E5:30:C9:C4
AES-17 (Ch 2)	-89.0		Mon Oct 01 13:4...	00:00:19 (Down)	1..3	00:18:E7:E8:D1:23	00:18:E7:E8:D1:23
AES-17 (Ch 2)	-87.0		Mon Oct 01 13:3...	00:00:19 (Down)	1..4	00:18:E7:E8:D1:23	00:18:E7:E8:D1:23
AES-17 (Ch 2)	-89.0		Mon Oct 01 13:3...	00:00:18 (Down)	1..3	00:18:E7:E8:D1:23	00:18:E7:E8:D1:23
AES-20 (Ch 1)	-84.0		Mon Oct 01 13:4...	00:00:28 (Down)	1..3	B8:A3:86:5C:D1:85	B8:A3:86:5C:D1:85
AES-20 (Ch 1)	-89.0		Mon Oct 01 13:4...	00:00:18 (Down)	1..2	B8:A3:86:5C:D1:85	B8:A3:86:5C:D1:85
AES-3 (Ch 2)	-89.0		Mon Oct 01 13:3...	00:00:18 (Down)	1..3	14:D6:4D:33:79:64	14:D6:4D:33:79:64
AES-4 (Ch 1)	-88.0		Mon Oct 01 13:4...	00:00:19 (Down)	1..3	00:26:5A:FA:FD:D4	00:26:5A:FA:FD:D4
AES-4 (Ch 1)	-87.0		Mon Oct 01 13:3...	00:00:28 (Down)	1..3	00:26:5A:FA:FD:D4	00:26:5A:FA:FD:D4
AES-4 (Ch 1)	-86.0		Mon Oct 01 13:3...	00:00:19 (Down)	1..3	00:26:5A:FA:FD:D4	00:26:5A:FA:FD:D4
AES-4 (Ch 1)	-87.0		Mon Oct 01 13:3...	00:00:56 (Down)	1..3	00:26:5A:FA:FD:D4	00:26:5A:FA:FD:D4
AES-5 (Ch 2)	-80.0		Mon Oct 01 13:4...	00:00:00	1..5	14:D6:4D:30:73:E6	14:D6:4D:30:73:E6
AES-5 (Ch 2)	-83.0		Mon Oct 01 13:4...	00:02:01 (Down)	1..4	14:D6:4D:30:73:E6	14:D6:4D:30:73:E6
AES-5 (Ch 2)	-79.0		Mon Oct 01 13:3...	00:03:25 (Down)	1..5	14:D6:4D:30:73:E6	14:D6:4D:30:73:E6
AES-6 (Ch 2)	-72.0		Mon Oct 01 13:3...	00:06:15	1..5	1C:7E:E5:30:68:62	1C:7E:E5:30:68:62
AES-6 (Ch 2)	-87.0		Mon Oct 01 13:3...	00:00:38 (Down)	1..4	1C:7E:E5:30:68:62	1C:7E:E5:30:68:62
AES-7 (Ch 4)	-80.0		Mon Oct 01 13:4...	00:00:18 (Down)	1..7	14:D6:4D:33:79:C4	14:D6:4D:33:79:C4
AES-7 (Ch 4)	-86.0		Mon Oct 01 13:4...	00:00:18 (Down)	2..6	14:D6:4D:33:79:C4	14:D6:4D:33:79:C4
AES-7 (Ch 4)	-88.0		Mon Oct 01 13:3...	00:01:24 (Down)	2..6	14:D6:4D:33:79:C4	14:D6:4D:33:79:C4
AES-7 (Ch 4)	-87.0		Mon Oct 01 13:3...	00:00:47 (Down)	2..6	14:D6:4D:33:79:C4	14:D6:4D:33:79:C4
AES-7 (Ch 4)	-84.0		Mon Oct 01 13:3...	00:01:43 (Down)	1..7	14:D6:4D:33:79:C4	14:D6:4D:33:79:C4
AES-8 (Ch 6)	-89.0		Mon Oct 01 13:4...	00:00:18 (Down)	5..7	00:13:10:3C:52:6F	00:13:10:3C:52:6F
AES-8 (Ch 6)	-92.0		Mon Oct 01 13:3...	00:00:19 (Down)	5..7	00:13:10:3C:52:6F	00:13:10:3C:52:6F
FG Mobile Home (Ch 6)	-90.0		Mon Oct 01 13:4...	00:00:28 (Down)	5..7	00:1D:7E:DB:C8:C2	00:1D:7E:DB:C8:C2
FG Mobile Home (Ch 6)	-86.0		Mon Oct 01 13:4...	00:00:19 (Down)	4..8	00:1D:7E:DB:C8:C2	00:1D:7E:DB:C8:C2
FG Mobile Home (Ch 6)	-86.0		Mon Oct 01 13:3...	00:02:48 (Down)	4..8	00:1D:7E:DB:C8:C2	00:1D:7E:DB:C8:C2
FG Mobile Home (Ch 6)	-87.0		Mon Oct 01 13:3...	00:01:33 (Down)	4..8	00:1D:7E:DB:C8:C2	00:1D:7E:DB:C8:C2
FG Mobile Home (Ch 6)	-89.0		Mon Oct 01 13:3...	00:00:19 (Down)	5..7	00:1D:7E:DB:C8:C2	00:1D:7E:DB:C8:C2
FRV (Ch 1)	-88.0		Mon Oct 01 13:3...	00:00:19 (Down)	1..3	00:02:6F:52:CC:4C	00:02:6F:52:CC:4C
FRV (Ch 1)	-88.0		Mon Oct 01 13:3...	00:00:38 (Down)	1..3	00:02:6F:52:CC:4C	00:02:6F:52:CC:4C

3.4 Site – LCFR 15

Devices: Last Day, All Channels

Device *	Signal Strength (dBm)	Duty Cycle (%) * 7	Discovery Time	On Time	Channels Affected	Network ID	Device ID
[-] Wi-Fi APs (In-Network) [27]							
Lakeview Internet (Ch 11)	-89.0		Tue Oct 02 11:12...	00:00:18 (Down)	10..12	00:26:5A:FA:D3:3A	00:26:5A:FA:D3:3A
linksys_WPS_3373 (Ch 6)	-88.0		Tue Oct 02 11:17...	00:00:18 (Down)	4..8	98:FC:11:D6:9A:...	98:FC:11:D6:9A:...
linksys_WPS_3373 (Ch 6)	-84.0		Tue Oct 02 11:11...	00:00:28 (Down)	4..8	98:FC:11:D6:9A:...	98:FC:11:D6:9A:...
linksys_WPS_3373 (Ch 6)	-85.0		Tue Oct 02 11:10...	00:00:18 (Down)	4..8	98:FC:11:D6:9A:...	98:FC:11:D6:9A:...
linksys_WPS_3373 (Ch 6)	-84.0		Tue Oct 02 11:09...	00:00:47 (Down)	3..9	98:FC:11:D6:9A:...	98:FC:11:D6:9A:...
my wifi (Ch 6)	-78.0		Tue Oct 02 11:18...	00:01:15	3..9	98:FC:11:D6:E8:76	98:FC:11:D6:E8:76
my wifi (Ch 6)	-81.0		Tue Oct 02 11:13...	00:04:51 (Down)	3..9	98:FC:11:D6:E8:76	98:FC:11:D6:E8:76
my wifi (Ch 6)	-76.0		Tue Oct 02 11:09...	00:03:17 (Down)	3..9	98:FC:11:D6:E8:76	98:FC:11:D6:E8:76
NETGEAR (Ch 11)	-84.0		Tue Oct 02 11:19...	00:00:00	9..13	00:1E:2A:59:50:46	00:1E:2A:59:50:46
NETGEAR (Ch 11)	-88.0		Tue Oct 02 11:16...	00:00:19 (Down)	9..13	00:1E:2A:59:50:46	00:1E:2A:59:50:46
NETGEAR (Ch 11)	-86.0		Tue Oct 02 11:15...	00:00:18 (Down)	9..13	00:1E:2A:59:50:46	00:1E:2A:59:50:46
NETGEAR (Ch 11)	-86.0		Tue Oct 02 11:12...	00:00:19 (Down)	9..13	00:1E:2A:59:50:46	00:1E:2A:59:50:46
NETGEAR (Ch 11)	-88.0		Tue Oct 02 11:11...	00:01:05 (Down)	9..13	00:1E:2A:59:50:46	00:1E:2A:59:50:46
NETGEAR (Ch 11)	-88.0		Tue Oct 02 11:10...	00:00:19 (Down)	9..13	00:1E:2A:59:50:46	00:1E:2A:59:50:46
NETGEAR (Ch 11)	-81.0		Tue Oct 02 11:09...	00:00:37 (Down)	8..13	00:1E:2A:59:50:46	00:1E:2A:59:50:46
NETGEAR (Ch 11)	-87.0		Tue Oct 02 11:08...	00:00:18 (Down)	9..13	00:1E:2A:59:50:46	00:1E:2A:59:50:46
westell5445 (Ch 6)	-89.0		Tue Oct 02 11:14...	00:00:19 (Down)	5..7	0C:D5:02:84:48:AE	0C:D5:02:84:48:AE
westell5445 (Ch 6)	-88.0		Tue Oct 02 11:13...	00:00:19 (Down)	4..8	0C:D5:02:84:48:AE	0C:D5:02:84:48:AE
westell6477 (Ch 6)	-89.0		Tue Oct 02 11:19...	00:00:37 (Down)	5..7	0C:D5:02:5B:42:34	0C:D5:02:5B:42:34
westell6477 (Ch 6)	-88.0		Tue Oct 02 11:16...	00:00:19 (Down)	4..8	0C:D5:02:5B:42:34	0C:D5:02:5B:42:34
westell6477 (Ch 6)	-89.0		Tue Oct 02 11:14...	00:00:19 (Down)	5..7	0C:D5:02:5B:42:34	0C:D5:02:5B:42:34
westell6477 (Ch 6)	-88.0		Tue Oct 02 11:12...	00:00:19 (Down)	4..8	0C:D5:02:5B:42:34	0C:D5:02:5B:42:34
westell6477 (Ch 6)	-86.0		Tue Oct 02 11:10...	00:01:24 (Down)	4..8	0C:D5:02:5B:42:34	0C:D5:02:5B:42:34
westell6477 (Ch 6)	-82.0		Tue Oct 02 11:09...	00:00:38 (Down)	3..9	0C:D5:02:5B:42:34	0C:D5:02:5B:42:34
westell6477 (Ch 6)	-84.0		Tue Oct 02 11:08...	00:00:28 (Down)	4..8	0C:D5:02:5B:42:34	0C:D5:02:5B:42:34
westell8883 (Ch 6)	-69.0		Tue Oct 02 11:09...	00:09:45	3..9	E0:46:9A:D9:3E:4C	E0:46:9A:D9:3E:4C
westell8883 (Ch 6)	-89.0		Tue Oct 02 11:09...	00:00:19 (Down)	5..7	E0:46:9A:D9:3E:4C	E0:46:9A:D9:3E:4C

3.5 Site – LCFR 19

Devices: Last Day, All Channels

Device *	Signal Strength (dBm)	Duty Cycle (%) * 7	Discovery Time	On Time	Channels Affected	Network ID	Device ID
[-] Bluetooth [5]							
Bluetooth Paging/Inquiry De...	-63.8		Wed Oct 10 10:4...	00:02:22 (Down)	N/A	28:43:31	
[-] Piconet 1 [1]							
Device 1	-83.9	25	Wed Oct 10 10:3...	00:01:45 (Down)	5..8	EB:7B:9C	
[-] Piconet 2 [1]							
Device 1	-89.7	14	Wed Oct 10 10:3...	00:02:44 (Down)	5..8	EB:7B:9A	
[-] Piconet 3 [1]							
Device 1	-59.7	17	Wed Oct 10 10:4...	00:00:47 (Down)	1..8	EB:7B:9C	
[-] Piconet 4 [1]							
Device 1	-63.9	28	Wed Oct 10 10:4...	00:00:00	1..3;5.....	EB:7B:9A	
[-] Wi-Fi APs (In-Network) [4]							
belkin54g (Ch 1)	-83.0		Wed Oct 10 10:4...	00:00:37 (Down)	1..4	00:1C:DF:CC:E6:60	00:1C:DF:CC:E6:60
LE (Ch 7)	-84.0		Wed Oct 10 10:4...	00:02:02 (Down)	5..9	00:19:3B:80:B0:3D	00:19:3B:80:B0:3D
LE (Ch 7)	-76.0		Wed Oct 10 10:4...	00:00:28 (Down)	4..10	00:19:3B:80:B0:3D	00:19:3B:80:B0:3D
westell6424 (Ch 6)	-78.0		Wed Oct 10 10:4...	00:00:18 (Down)	3..9	74:44:01:AC:E3:83	74:44:01:AC:E3:83

3.6 Site – LCFR 20

Devices: Last Day, All Channels

Device *	Signal Strength (dBm)	Duty Cycle (%) * 10 ⁻¹	Discovery Time	On Time	Channels Affected	Network ID	Device ID
Bluetooth [3]							
Bluetooth Paging/Inquiry De...	-51.9		Wed Oct 10 11:0...	00:09:30	1..5;11...	EB:7B:66	
Piconet 1 [1]							
Device 1	-88.3	24	Wed Oct 10 11:0...	00:06:12 (Down)	1..2;5..8	EB:7B:9A	
Piconet 2 [1]							
Device 1	-79.6	15	Wed Oct 10 11:0...	00:03:03 (Down)	5..8	EB:7B:9C	
Wi-Fi APs (In-Network) [24]							
(00:0B:85:2C:51:BF) (Ch 11)	-86.0		Wed Oct 10 11:1...	00:00:19 (Down)	9..13	00:0B:85:2C:51:BF	00:0B:85:2C:51:BF
(00:0B:85:2C:51:BF) (Ch 11)	-82.0		Wed Oct 10 11:0...	00:01:24 (Down)	9..13	00:0B:85:2C:51:BF	00:0B:85:2C:51:BF
Cisco32625 (Ch 1)	-88.0		Wed Oct 10 11:1...	00:00:00	1..3	C0:C1:C0:D9:16:19	C0:C1:C0:D9:16:19
Cisco32625 (Ch 1)	-88.0		Wed Oct 10 11:0...	00:00:28 (Down)	1..3	C0:C1:C0:D9:16:19	C0:C1:C0:D9:16:19
Cisco32625 (Ch 1)	-87.0		Wed Oct 10 11:0...	00:00:18 (Down)	1..3	C0:C1:C0:D9:16:19	C0:C1:C0:D9:16:19
Cisco32625 (Ch 1)	-90.0		Wed Oct 10 11:0...	00:00:18 (Down)	1..2	C0:C1:C0:D9:16:19	C0:C1:C0:D9:16:19
CWP SOUND (Ch 11)	-82.0		Wed Oct 10 11:0...	00:00:19 (Down)	8..13	F8:1E:DF:FE:56:EF	F8:1E:DF:FE:56:EF
CWP SOUND (Ch 11)	-91.0		Wed Oct 10 11:0...	00:00:18 (Down)	10..12	F8:1E:DF:FE:56:EF	F8:1E:DF:FE:56:EF
CWP SOUND (Ch 11)	-88.0		Wed Oct 10 11:0...	00:00:21 (Down)	9..13	F8:1E:DF:FE:56:EF	F8:1E:DF:FE:56:EF
danandleah88 (Ch 6)	-82.0		Wed Oct 10 11:0...	00:00:19 (Down)	3..9	A0:21:B7:84:43:BE	A0:21:B7:84:43:BE
HOME-67F2 (Ch 11)	-85.0		Wed Oct 10 11:0...	00:00:37 (Down)	9..13	00:1D:D3:3F:67:F0	00:1D:D3:3F:67:F0
MiFi4620L Jetpack D56F Sec...	-82.0		Wed Oct 10 11:0...	00:00:25 (Down)	1..4	00:15:FF:1A:D5:6F	00:15:FF:1A:D5:6F
The Mancave (Ch 11)	-91.0		Wed Oct 10 11:0...	00:00:18 (Down)	10..12	00:1A:70:48:22:71	00:1A:70:48:22:71
The Mancave (Ch 11)	-93.0		Wed Oct 10 11:0...	00:00:37 (Down)	None	00:1A:70:48:22:71	00:1A:70:48:22:71
The Mancave (Ch 11)	-90.0		Wed Oct 10 11:0...	00:00:19 (Down)	10..12	00:1A:70:48:22:71	00:1A:70:48:22:71
WELCOME (Ch 11)	-95.0		Wed Oct 10 11:1...	00:00:45	None	00:0B:85:2C:51:BE	00:0B:85:2C:51:BE
WELCOME (Ch 11)	-84.0		Wed Oct 10 11:1...	00:00:19 (Down)	9..13	00:0B:85:2C:51:BE	00:0B:85:2C:51:BE
WELCOME (Ch 11)	-84.0		Wed Oct 10 11:0...	00:08:22 (Down)	8..13	00:0B:85:2C:51:BE	00:0B:85:2C:51:BE
WLCBCC (Ch 11)	-92.0		Wed Oct 10 11:1...	00:00:45	10..12	00:0B:85:2C:51:BA	00:0B:85:2C:51:BA
WLCBCC (Ch 11)	-86.0		Wed Oct 10 11:1...	00:00:19 (Down)	9..13	00:0B:85:2C:51:BA	00:0B:85:2C:51:BA
WLCBCC (Ch 11)	-83.0		Wed Oct 10 11:0...	00:01:24 (Down)	9..13	00:0B:85:2C:51:BA	00:0B:85:2C:51:BA
WLCBCC (Ch 11)	-73.0		Wed Oct 10 11:0...	00:06:48 (Down)	8..13	00:0B:85:2C:51:BA	00:0B:85:2C:51:BA
WLCBCC (Ch 161)	-85.0		Wed Oct 10 11:0...	00:00:19 (Down)	161	00:0B:85:2C:51:B5	00:0B:85:2C:51:B5
WLCBCC (Ch 161)	-83.0		Wed Oct 10 11:0...	00:05:52 (Down)	161	00:0B:85:2C:51:B5	00:0B:85:2C:51:B5

5 GHz interference

Device	Channel
WLCBCC	161
WLCBCC	161

3.7 Site – LCFR 21

Devices: Last Day, All Channels

Device *	Signal Strength (dBm)	Duty Cycle (%) * 1/2	Discovery Time	On Time	Channels Affected	Network ID	Device ID
[-] Wi-Fi APs (In-Network) [19]							
Freedom (Ch 1)	-88.0		Tue Oct 02 12:35...	00:00:00	1..3	00:25:9C:4A:76:22	00:25:9C:4A:76:22
FZR18 (Ch 11)	-70.0		Tue Oct 02 12:35...	00:00:15	8..13	48:44:87:57:60:FC	48:44:87:57:60:FC
FZR18 (Ch 11)	-83.0		Tue Oct 02 12:34...	00:00:19 (Down)	9..13	48:44:87:57:60:FC	48:44:87:57:60:FC
FZR18 (Ch 11)	-80.0		Tue Oct 02 12:34...	00:00:37 (Down)	8..13	48:44:87:57:60:FC	48:44:87:57:60:FC
FZR18 (Ch 11)	-83.0		Tue Oct 02 12:31...	00:00:19 (Down)	9..13	48:44:87:57:60:FC	48:44:87:57:60:FC
NETGEAR (Ch 1)	-87.0		Tue Oct 02 12:34...	00:01:05 (Down)	1..3	E0:91:F5:B9:FE:1B	E0:91:F5:B9:FE:1B
NETGEAR (Ch 1)	-86.0		Tue Oct 02 12:32...	00:00:37 (Down)	1..3	E0:91:F5:B9:FE:1B	E0:91:F5:B9:FE:1B
NETGEAR (Ch 1)	-88.0		Tue Oct 02 12:32...	00:00:19 (Down)	1..3	E0:91:F5:B9:FE:1B	E0:91:F5:B9:FE:1B
NETGEAR (Ch 1)	-91.0		Tue Oct 02 12:31...	00:00:19 (Down)	1..2	E0:91:F5:B9:FE:1B	E0:91:F5:B9:FE:1B
NETGEAR (Ch 1)	-90.0		Tue Oct 02 12:30...	00:00:19 (Down)	1..2	E0:91:F5:B9:FE:1B	E0:91:F5:B9:FE:1B
NETGEAR (Ch 1)	-90.0		Tue Oct 02 12:29...	00:00:19 (Down)	1..2	E0:91:F5:B9:FE:1B	E0:91:F5:B9:FE:1B
NETGEAR (Ch 1)	-86.0		Tue Oct 02 12:27...	00:01:34 (Down)	1..3	E0:91:F5:B9:FE:1B	E0:91:F5:B9:FE:1B
NETGEAR (Ch 1)	-61.0		Tue Oct 02 12:26...	00:08:30	1..4	00:26:F2:4E:53:02	00:26:F2:4E:53:02
PizzaTime (Ch 6)	-84.0		Tue Oct 02 12:35...	00:00:19 (Down)	4..8	E0:46:9A:79:42:B2	E0:46:9A:79:42:B2
westell4012 (Ch 6)	-84.0		Tue Oct 02 12:35...	00:00:00	4..8	74:44:01:B0:62:64	74:44:01:B0:62:64
westell4921 (Ch 6)	-90.0		Tue Oct 02 12:30...	00:00:19 (Down)	5..7	74:44:01:AF:F7:DB	74:44:01:AF:F7:DB
westell9916 (Ch 6)	-89.0		Tue Oct 02 12:35...	00:00:00	5..7	0C:D5:02:7A:67:B7	0C:D5:02:7A:67:B7
ZyXEL_188 (Ch 6)	-88.0		Tue Oct 02 12:35...	00:00:00	4..8	40:4A:03:CB:51:88	40:4A:03:CB:51:88
ZyXEL_188 (Ch 6)	-90.0		Tue Oct 02 12:30...	00:00:19 (Down)	5..7	40:4A:03:CB:51:88	40:4A:03:CB:51:88

3.8 Site – LCFR 27

Devices: Last Day, All Channels

Device *	Signal Strength (dBm)	Duty Cycle (%) * 10	Discovery Time	On Time	Channels Affected	Network ID	Device ID
<input type="checkbox"/> Wi-Fi Ad Hocs [1]							
HP-nomodel.610A6D (Ch 6)	-89.0		Tue Oct 02 13:08...	00:00:18 (Down)	5..7	02:26:B6:A4:55:A3	02:26:B6:A4:55:A3
<input type="checkbox"/> Wi-Fi APs (In-Network) [37]							
billy (Ch 6)	-69.0		Tue Oct 02 13:05...	00:03:45	3..9	00:1D:7E:50:79:FF	00:1D:7E:50:79:FF
billy (Ch 6)	-86.0		Tue Oct 02 13:02...	00:00:38 (Down)	4..8	00:1D:7E:50:79:FF	00:1D:7E:50:79:FF
Flo's Network (Ch 1)	-79.0		Tue Oct 02 13:05...	00:04:03 (Down)	1..2	00:11:24:00:FB:97	00:11:24:00:FB:97
harley here anymore (Ch 1)	-84.0		Tue Oct 02 13:08...	00:00:38 (Down)	1..3	94:44:52:21:7A:D8	94:44:52:21:7A:D8
harley here anymore (Ch 1)	-82.0		Tue Oct 02 13:07...	00:00:47 (Down)	1..4	94:44:52:21:7A:D8	94:44:52:21:7A:D8
harley here anymore (Ch 1)	-89.0		Tue Oct 02 13:05...	00:00:56 (Down)	1..3	94:44:52:21:7A:D8	94:44:52:21:7A:D8
linksys (Ch 6)	-74.0		Tue Oct 02 13:02...	00:06:15	3..9	00:0C:41:F7:B5:94	00:0C:41:F7:B5:94
NETGEAR (Ch 1)	-77.0		Tue Oct 02 13:08...	00:00:19 (Down)	1..4	30:46:9A:F9:90:70	30:46:9A:F9:90:70
NETGEAR (Ch 1)	-88.0		Tue Oct 02 13:07...	00:00:19 (Down)	1..3	30:46:9A:F9:90:70	30:46:9A:F9:90:70
NETGEAR (Ch 1)	-87.0		Tue Oct 02 13:06...	00:00:37 (Down)	1..3	30:46:9A:F9:90:70	30:46:9A:F9:90:70
NETGEAR (Ch 1)	-86.0		Tue Oct 02 13:06...	00:00:19 (Down)	1..3	30:46:9A:F9:90:70	30:46:9A:F9:90:70
NETGEAR (Ch 1)	-84.0		Tue Oct 02 13:05...	00:00:38 (Down)	1..3	30:46:9A:F9:90:70	30:46:9A:F9:90:70
NewHope (Ch 1)	-81.0		Tue Oct 02 13:07...	00:01:15	1..3	58:6D:8F:67:06:FB	58:6D:8F:67:06:FB
NewHope (Ch 1)	-82.0		Tue Oct 02 13:06...	00:00:19 (Down)	1..4	58:6D:8F:67:06:FB	58:6D:8F:67:06:FB
NewHope (Ch 1)	-88.0		Tue Oct 02 13:05...	00:00:38 (Down)	1..3	58:6D:8F:67:06:FB	58:6D:8F:67:06:FB
NewHope (Ch 1)	-89.0		Tue Oct 02 13:04...	00:00:56 (Down)	1..2	58:6D:8F:67:06:FB	58:6D:8F:67:06:FB
NewHope (Ch 1)	-76.0		Tue Oct 02 13:02...	00:02:01 (Down)	1..4	58:6D:8F:67:06:FB	58:6D:8F:67:06:FB
NewHope-guest (Ch 1)	-83.0		Tue Oct 02 13:07...	00:01:15	1..3	58:6D:8F:67:06:FD	58:6D:8F:67:06:FD
NewHope-guest (Ch 1)	-84.0		Tue Oct 02 13:05...	00:00:19 (Down)	1..3	58:6D:8F:67:06:FD	58:6D:8F:67:06:FD
NewHope-guest (Ch 1)	-80.0		Tue Oct 02 13:05...	00:00:19 (Down)	1..4	58:6D:8F:67:06:FD	58:6D:8F:67:06:FD
NewHope-guest (Ch 1)	-86.0		Tue Oct 02 13:04...	00:00:28 (Down)	1..3	58:6D:8F:67:06:FD	58:6D:8F:67:06:FD
NewHope-guest (Ch 1)	-75.0		Tue Oct 02 13:02...	00:02:01 (Down)	1..4	58:6D:8F:67:06:FD	58:6D:8F:67:06:FD
TasGlass (Ch 1)	-86.0		Tue Oct 02 13:08...	00:00:19 (Down)	1..3	68:7F:74:BE:12:F9	68:7F:74:BE:12:F9
TasGlass (Ch 1)	-91.0		Tue Oct 02 13:06...	00:00:38 (Down)	1..2	68:7F:74:BE:12:F9	68:7F:74:BE:12:F9
TasGlass (Ch 1)	-86.0		Tue Oct 02 13:05...	00:00:19 (Down)	1..3	68:7F:74:BE:12:F9	68:7F:74:BE:12:F9
Verizon MIFI4510L CD69 Se...	-89.0		Tue Oct 02 13:04...	00:00:19 (Down)	1..2	00:15:FF:24:CD:69	00:15:FF:24:CD:69
westell3849 (Ch 6)	-86.0		Tue Oct 02 13:06...	00:00:19 (Down)	4..8	0C:D5:02:62:F1:66	0C:D5:02:62:F1:66
westell3849 (Ch 6)	-87.0		Tue Oct 02 13:06...	00:00:18 (Down)	4..8	0C:D5:02:62:F1:66	0C:D5:02:62:F1:66
westell5100 (Ch 6)	-82.0		Tue Oct 02 13:08...	00:00:19 (Down)	3..9	74:44:01:AB:E9:9F	74:44:01:AB:E9:9F
westell5100 (Ch 6)	-82.0		Tue Oct 02 13:06...	00:00:28 (Down)	3..9	74:44:01:AB:E9:9F	74:44:01:AB:E9:9F
westell5100 (Ch 6)	-88.0		Tue Oct 02 13:06...	00:00:19 (Down)	4..8	74:44:01:AB:E9:9F	74:44:01:AB:E9:9F
westell5100 (Ch 6)	-87.0		Tue Oct 02 13:05...	00:01:05 (Down)	4..8	74:44:01:AB:E9:9F	74:44:01:AB:E9:9F
westell5100 (Ch 6)	-84.0		Tue Oct 02 13:02...	00:00:38 (Down)	4..8	74:44:01:AB:E9:9F	74:44:01:AB:E9:9F
westell8875 (Ch 6)	-86.0		Tue Oct 02 13:08...	00:00:45	4..8	74:44:01:AC:15:DC	74:44:01:AC:15:DC
westell8875 (Ch 6)	-84.0		Tue Oct 02 13:07...	00:00:19 (Down)	4..8	74:44:01:AC:15:DC	74:44:01:AC:15:DC
westell8875 (Ch 6)	-83.0		Tue Oct 02 13:03...	00:01:52 (Down)	4..8	74:44:01:AC:15:DC	74:44:01:AC:15:DC
westell8875 (Ch 6)	-91.0		Tue Oct 02 13:02...	00:00:19 (Down)	5..7	74:44:01:AC:15:DC	74:44:01:AC:15:DC

3.9 Site – LCFR 39

Devices: Last Hour, All Channels

Device *	Signal Strength (dBm)	Duty Cycle (%) * [†]	Discovery Time	On Time	Channels Affected	Network ID	Device ID
Bluetooth [4]							
Bluetooth Paging/Inquiry De...	-68.8		Wed Oct 10 12:5...	00:05:51 (Down)	N/A	28:43:31	
Piconet 1 [1]							
Device 1	-91.5	3	Wed Oct 10 12:5...	00:00:50 (Down)	1..13	DD:57:7C	
Piconet 2 [1]							
Device 1	-91.3	17	Wed Oct 10 12:5...	00:03:18 (Down)	5..8	EB:7B:9A	
Piconet 3 [1]							
Device 1	-89.9	9	Wed Oct 10 13:0...	00:00:19 (Down)	1..13	EB:7B:9A	
Wi-Fi APs (In-Network) [32]							
Cisco2492 (Ch 6)	-78.0		Wed Oct 10 13:0...	00:00:15	3..9	BC:C8:10:A8:32:40	BC:C8:10:A8:32:40
Cisco2492 (Ch 6)	-79.0		Wed Oct 10 13:0...	00:00:46 (Down)	3..9	BC:C8:10:A8:32:40	BC:C8:10:A8:32:40
Cisco2492 (Ch 6)	-87.0		Wed Oct 10 13:0...	00:00:19 (Down)	4..8	BC:C8:10:A8:32:40	BC:C8:10:A8:32:40
Cisco2492 (Ch 6)	-70.0		Wed Oct 10 12:5...	00:00:19 (Down)	3..9	BC:C8:10:A8:32:40	BC:C8:10:A8:32:40
Cisco6369 (Ch 1)	-89.0		Wed Oct 10 12:5...	00:00:19 (Down)	1..2	A4:A2:4A:7D:1D...	A4:A2:4A:7D:1D...
Cisco7713 (Ch 6)	-84.0		Wed Oct 10 13:0...	00:00:18 (Down)	4..8	A4:A2:4A:7F:77:3C	A4:A2:4A:7F:77:3C
Cisco7713 (Ch 6)	-83.0		Wed Oct 10 13:0...	00:00:37 (Down)	4..8	A4:A2:4A:7F:77:3C	A4:A2:4A:7F:77:3C
Cisco7713 (Ch 6)	-73.0		Wed Oct 10 12:5...	00:00:19 (Down)	3..9	A4:A2:4A:7F:77:3C	A4:A2:4A:7F:77:3C
Cisco7802 (Ch 1)	-91.0		Wed Oct 10 12:5...	00:00:19 (Down)	1..2	A4:A2:4A:7F:83:52	A4:A2:4A:7F:83:52
Cool cuts (Ch 1)	-83.0		Wed Oct 10 13:0...	00:00:47 (Down)	1..3	E0:91:F5:A2:0B:08	E0:91:F5:A2:0B:08
Cool cuts (Ch 1)	-89.0		Wed Oct 10 12:5...	00:00:19 (Down)	1..2	E0:91:F5:A2:0B:08	E0:91:F5:A2:0B:08
Cool cuts (Ch 1)	-87.0		Wed Oct 10 12:5...	00:00:18 (Down)	1..3	E0:91:F5:A2:0B:08	E0:91:F5:A2:0B:08
Cool cuts (Ch 1)	-88.0		Wed Oct 10 12:5...	00:00:18 (Down)	1..3	E0:91:F5:A2:0B:08	E0:91:F5:A2:0B:08
gandy (Ch 1)	-87.0		Wed Oct 10 12:5...	00:00:19 (Down)	1..3	84:C9:B2:61:08:0E	84:C9:B2:61:08:0E
gandy (Ch 1)	-78.0		Wed Oct 10 12:5...	00:00:29 (Down)	1..4	84:C9:B2:61:08:0E	84:C9:B2:61:08:0E
gandy (Ch 1)	-88.0		Wed Oct 10 12:5...	00:00:47 (Down)	1..3	84:C9:B2:61:08:0E	84:C9:B2:61:08:0E
hegstrom (Ch 4)	-77.0		Wed Oct 10 13:0...	00:01:15	1..7	00:18:F8:C4:81:BB	00:18:F8:C4:81:BB
HOME-B1A2 (Ch 11)	-89.0		Wed Oct 10 13:0...	00:00:00	10..12	00:1D:D4:59:B1:A0	00:1D:D4:59:B1:A0
HOME-B1A2 (Ch 11)	-88.0		Wed Oct 10 12:5...	00:00:18 (Down)	9..13	00:1D:D4:59:B1:A0	00:1D:D4:59:B1:A0
Janego Construction (Ch 1)	-76.0		Wed Oct 10 13:0...	00:03:00	1..2	00:22:6B:93:C8:EE	00:22:6B:93:C8:EE
Janego Construction (Ch 1)	-86.0		Wed Oct 10 12:5...	00:00:19 (Down)	1..3	00:22:6B:93:C8:EE	00:22:6B:93:C8:EE
Janego Construction (Ch 1)	-79.0		Wed Oct 10 12:5...	00:02:39 (Down)	1..4	00:22:6B:93:C8:EE	00:22:6B:93:C8:EE
MPL Remote (Ch 5)	-88.0		Wed Oct 10 12:5...	00:00:19 (Down)	3..7	CC:5D:4E:31:A0:...	CC:5D:4E:31:A0:...
syounig (Ch 1)	-87.0		Wed Oct 10 13:0...	00:01:05 (Down)	1..3	58:6D:8F:E2:8A:93	58:6D:8F:E2:8A:93
syounig (Ch 1)	-82.0		Wed Oct 10 12:5...	00:01:05 (Down)	1..4	58:6D:8F:E2:8A:93	58:6D:8F:E2:8A:93
syounig (Ch 1)	-84.0		Wed Oct 10 12:5...	00:00:19 (Down)	1..3	58:6D:8F:E2:8A:93	58:6D:8F:E2:8A:93
syounig (Ch 1)	-82.0		Wed Oct 10 12:5...	00:00:19 (Down)	1..4	58:6D:8F:E2:8A:93	58:6D:8F:E2:8A:93
syounig-guest (Ch 1)	-87.0		Wed Oct 10 13:0...	00:00:19 (Down)	1..3	58:6D:8F:E2:8A:94	58:6D:8F:E2:8A:94
syounig-guest (Ch 1)	-80.0		Wed Oct 10 13:0...	00:00:28 (Down)	1..4	58:6D:8F:E2:8A:94	58:6D:8F:E2:8A:94
syounig-guest (Ch 1)	-82.0		Wed Oct 10 12:5...	00:00:28 (Down)	1..4	58:6D:8F:E2:8A:94	58:6D:8F:E2:8A:94
syounig-guest (Ch 1)	-84.0		Wed Oct 10 12:5...	00:00:38 (Down)	1..3	58:6D:8F:E2:8A:94	58:6D:8F:E2:8A:94
syounig-guest (Ch 1)	-82.0		Wed Oct 10 12:5...	00:00:19 (Down)	1..4	58:6D:8F:E2:8A:94	58:6D:8F:E2:8A:94

3.10 Site – LCFR 52

Devices: Last 10 Minutes, All Channels

Device *	Signal Strength (dBm)	Duty Cycle (%) * 1/2	Discovery Time	On Time	Channels Affected	Network ID	Device ID
Bluetooth [3]							
Bluetooth Paging/Inquiry De...	-74.1		Wed Oct 10 15:2...	00:02:25 (Down)	N/A	28:43:31	
Piconet 1 [1]							
Device 1	-65.8	4	Wed Oct 10 15:2...	00:00:07 (Down)	1..14	DD:57:7C	
Piconet 2 [1]							
Device 1	-92.6	3	Wed Oct 10 15:2...	00:00:50 (Down)	5..8	DD:57:7C	
Wi-Fi Ad Hocs [6]							
hpsetup (Ch 6)	-88.0		Wed Oct 10 15:2...	00:00:19 (Down)	4..8	32:C1:DE:D2:AF:96	32:C1:DE:D2:AF:96
Loryborts iPhone (Ch 6)	-88.0		Wed Oct 10 15:2...	00:00:19 (Down)	4..8	02:28:E8:02:D6:01	02:28:E8:02:D6:01
SETUP (Ch 11)	-86.0		Wed Oct 10 15:2...	00:01:30	10..12	5E:92:0F:DA:C0:97	5E:92:0F:DA:C0:97
SETUP (Ch 11)	-88.0		Wed Oct 10 15:2...	00:00:38 (Down)	9..13	5E:92:0F:DA:C0:97	5E:92:0F:DA:C0:97
SETUP (Ch 11)	-89.0		Wed Oct 10 15:2...	00:00:28 (Down)	10..12	5E:92:0F:DA:C0:97	5E:92:0F:DA:C0:97
SETUP (Ch 11)	-87.0		Wed Oct 10 15:2...	00:00:19 (Down)	9..13	5E:92:0F:DA:C0:97	5E:92:0F:DA:C0:97
Wi-Fi APs (In-Network) [26]							
2WIRE854 (Ch 2)	-83.0		Wed Oct 10 15:2...	00:01:05 (Down)	1..4	00:1B:5B:1D:96:89	00:1B:5B:1D:96:89
2WIRE854 (Ch 2)	-76.0		Wed Oct 10 15:2...	00:00:28 (Down)	1..5	00:1B:5B:1D:96:89	00:1B:5B:1D:96:89
CenturyLink4854 (Ch 6)	-84.0		Wed Oct 10 15:2...	00:00:45	3..9	B2:B2:DC:82:68:C8	B2:B2:DC:82:68:C8
CenturyLink4854 (Ch 6)	-82.0		Wed Oct 10 15:2...	00:00:19 (Down)	3..9	B2:B2:DC:82:68:C8	B2:B2:DC:82:68:C8
default (Ch 6)	-76.0		Wed Oct 10 15:2...	00:02:45	4..8	20:CF:30:C7:44:42	20:CF:30:C7:44:42
default (Ch 6)	-75.0		Wed Oct 10 15:2...	00:00:19 (Down)	3..9	20:CF:30:C7:44:42	20:CF:30:C7:44:42
default (Ch 6)	-86.0		Wed Oct 10 15:2...	00:00:38 (Down)	4..8	20:CF:30:C7:44:42	20:CF:30:C7:44:42
FLPNR_Lady Lake (Ch 11)	-70.0		Wed Oct 10 15:2...	00:05:30	8..13	08:86:3B:D4:E1:FC	08:86:3B:D4:E1:FC
Medic (Ch 1)	-85.0		Wed Oct 10 15:3...	00:00:00	1..3	00:80:48:69:4F:01	00:80:48:69:4F:01
Medic (Ch 1)	-88.0		Wed Oct 10 15:2...	00:00:19 (Down)	1..3	00:80:48:69:4F:01	00:80:48:69:4F:01
Medic (Ch 1)	-70.0		Wed Oct 10 15:2...	00:01:43 (Down)	1..4	00:80:48:69:4F:01	00:80:48:69:4F:01
Medic (Ch 1)	-72.0		Wed Oct 10 15:2...	00:00:56 (Down)	1..4	00:80:48:69:4F:01	00:80:48:69:4F:01
Station (Ch 11)	-81.0		Wed Oct 10 15:3...	00:00:15	8..13	00:22:3F:4E:74:88	00:22:3F:4E:74:88
Station (Ch 11)	-77.0		Wed Oct 10 15:2...	00:04:49 (Down)	8..13	00:22:3F:4E:74:88	00:22:3F:4E:74:88
WATOAKIDF01W (Ch 1)	-70.0		Wed Oct 10 15:2...	00:00:28 (Down)	1..4	00:0D:67:0F:2C:CD	00:0D:67:0F:2C:CD
WATOAKIDF01W (Ch 1)	-87.0		Wed Oct 10 15:2...	00:00:18 (Down)	1..3	00:0D:67:0F:2C:CD	00:0D:67:0F:2C:CD
WATOAKIDF01W (Ch 1)	-76.0		Wed Oct 10 15:2...	00:00:37 (Down)	1..3	00:0D:67:0F:2C:CD	00:0D:67:0F:2C:CD
WATOAKIDF04W (Ch 6)	-83.0		Wed Oct 10 15:2...	00:00:19 (Down)	4..8	00:0D:67:0F:2A:72	00:0D:67:0F:2A:72
WATOAKIDF04W (Ch 6)	-74.0		Wed Oct 10 15:2...	00:00:29 (Down)	3..9	00:0D:67:0F:2A:72	00:0D:67:0F:2A:72
WATOAKIDF06W (Ch 1)	-90.0		Wed Oct 10 15:2...	00:00:19 (Down)	1..2	00:0D:67:0F:4D:40	00:0D:67:0F:4D:40
WATOAKIDF09W (Ch 11)	-88.0		Wed Oct 10 15:2...	00:00:30	10..12	00:0D:67:0F:51:ED	00:0D:67:0F:51:ED
westell6945 (Ch 6)	-83.0		Wed Oct 10 15:2...	00:00:37 (Down)	4..8	74:44:01:A7:E8:F8	74:44:01:A7:E8:F8
westell6945 (Ch 6)	-77.0		Wed Oct 10 15:2...	00:00:47 (Down)	3..9	74:44:01:A7:E8:F8	74:44:01:A7:E8:F8
ZyXEL_87F (Ch 6)	-89.0		Wed Oct 10 15:2...	00:00:18 (Down)	5..7	00:23:F8:B3:18:7F	00:23:F8:B3:18:7F
ZyXEL_87F (Ch 6)	-89.0		Wed Oct 10 15:2...	00:00:19 (Down)	5..7	00:23:F8:B3:18:7F	00:23:F8:B3:18:7F
ZyXEL_B65 (Ch 6)	-80.0		Wed Oct 10 15:2...	00:05:15	4..8	00:23:F8:C7:1B:65	00:23:F8:C7:1B:65

3.11 Site – LCFR 53

Devices: Currently Active, All Channels

Device *	Signal Strength (dBm)	Duty Cycle (%) * 1/2	Discovery Time	On Time	Channels Affected	Network ID	Device ID
Wi-Fi APs (In-Network) [14]							
24GHz (Ch 11)	-87.0		Wed Oct 03 10:3...	00:00:30	9..13	C4:3D:C7:47:E7:24	C4:3D:C7:47:E7:24
belkin.860 (Ch 1)	-76.0		Wed Oct 03 10:3...	00:04:30	1..4	08:86:3B:BD:38:60	08:86:3B:BD:38:60
belkin.860.guests (Ch 1)	-75.0		Wed Oct 03 10:3...	00:03:15	1..4	0A:86:3B:BD:38:61	0A:86:3B:BD:38:61
belkin.ecc (Ch 6)	-85.0		Wed Oct 03 10:3...	00:00:00	4..8	08:86:3B:9B:EE:CC	08:86:3B:9B:EE:CC
belkin54g (Ch 1)	-82.0		Wed Oct 03 10:3...	00:00:30	1..4	00:1C:DF:FC:18:E2	00:1C:DF:FC:18:E2
Belkin_979631 (Ch 11)	-86.0		Wed Oct 03 10:3...	00:00:00	9..13	08:86:3B:97:96:31	08:86:3B:97:96:31
BrownEagle (Ch 11)	-76.0		Wed Oct 03 10:3...	00:00:00	8..13	98:FC:11:86:7A:B9	98:FC:11:86:7A:B9
BrownEagle-guest (Ch 11)	-81.0		Wed Oct 03 10:3...	00:00:30	9..13	98:FC:11:86:7A:BB	98:FC:11:86:7A:BB
HOME-1E42 (Ch 6)	-81.0		Wed Oct 03 10:3...	00:02:00	3..9	00:1D:D0:6A:1E:40	00:1D:D0:6A:1E:40
linksys (Ch 9)	-90.0		Wed Oct 03 10:3...	00:00:00	8..10	00:1D:7E:2D:26:9A	00:1D:7E:2D:26:9A
NETGEAR08 (Ch 2)	-88.0		Wed Oct 03 10:3...	00:00:00	1..4	4C:60:DE:D4:7D:7F	4C:60:DE:D4:7D:7F
not-4-you (Ch 2)	-72.0		Wed Oct 03 10:3...	00:02:45	1..5	00:24:B2:5E:BB:43	00:24:B2:5E:BB:43
RaneeEMS (Ch 11)	-73.0		Wed Oct 03 10:3...	00:02:30	8..13	20:AA:4B:3E:15:A0	20:AA:4B:3E:15:A0
Verizon MIFI4510L 7670 Sec...	-67.0		Wed Oct 03 10:3...	00:01:45	1..5	00:15:FF:23:76:70	00:15:FF:23:76:70

3.12 Site – LCFR 54

Devices: Currently Active, All Channels

Device *	Signal Strength (dBm)	Duty Cycle (%) * 1/2	Discovery Time	On Time	Channels Affected	Network ID	Device ID
Wi-Fi APs (In-Network) [12]							
(00:26:F3:5C:5B:48) (Ch 1)	-87.0		Thu Sep 27 15:03...	00:00:15	1..3	00:26:F3:5C:5B:48	00:26:F3:5C:5B:48
(00:26:F3:5C:5B:49) (Ch 1)	-89.0		Thu Sep 27 15:03...	00:00:00	1..2	00:26:F3:5C:5B:49	00:26:F3:5C:5B:49
(00:26:F3:5C:5B:4A) (Ch 1)	-87.0		Thu Sep 27 15:03...	00:00:00	1..3	00:26:F3:5C:5B:4A	00:26:F3:5C:5B:4A
(00:26:F3:5C:5B:4B) (Ch 1)	-89.0		Thu Sep 27 15:03...	00:00:00	1..2	00:26:F3:5C:5B:4B	00:26:F3:5C:5B:4B
(C2:3F:0E:B5:24:53) (Ch 11)	-78.0		Thu Sep 27 15:03...	00:00:00	8..13	C2:3F:0E:B5:24:53	C2:3F:0E:B5:24:53
Brecht-NET (Ch 1)	-86.0		Thu Sep 27 15:02...	00:00:45	1..2	00:19:9D:4E:EA:91	00:19:9D:4E:EA:91
dlink_6223 (Ch 7)	-87.0		Thu Sep 27 15:03...	00:00:00	5..9	00:21:91:E9:30:1D	00:21:91:E9:30:1D
MIFI4620L Jetpack BBF3 Sec...	-55.0		Thu Sep 27 14:55...	00:08:00	1..5	00:15:FF:1C:BB:F3	00:15:FF:1C:BB:F3
Nelson (Ch 5)	-84.0		Thu Sep 27 15:03...	00:00:00	3..7	00:22:3F:A6:B7:EF	00:22:3F:A6:B7:EF
NETGEAR (Ch 11)	-87.0		Thu Sep 27 15:01...	00:01:45	10..12	00:18:4D:54:69:1C	00:18:4D:54:69:1C
ParkinNet (Ch 11)	-87.0		Thu Sep 27 15:02...	00:00:45	9..13	C0:3F:0E:B5:24:52	C0:3F:0E:B5:24:52
SS2010 (Ch 11)	-87.0		Thu Sep 27 15:02...	00:00:30	9..13	C0:3F:0E:48:01:84	C0:3F:0E:48:01:84

3.13 Site – LCFR 59

Devices: Currently Active, All Channels

Device *	Signal Strength (dBm)	Duty Cycle (%) * 1/2	Discovery Time	On Time	Channels Affected	Network ID	Device ID
Wi-Fi APs (In-Network) [18]							
(00:1D:7E:5A:4B:8E) (Ch 9)	-73.0		Wed Oct 03 09:5...	00:00:15	6..12	00:1D:7E:5A:4B:8E	00:1D:7E:5A:4B:8E
Barking Dog 1 (Ch 11)	-81.0		Wed Oct 03 09:5...	00:00:00	8..13	2C:B0:5D:32:34:08	2C:B0:5D:32:34:08
Barking Dog Guest (Ch 11)	-82.0		Wed Oct 03 09:5...	00:00:00	8..13	2E:B0:5D:32:34:09	2E:B0:5D:32:34:09
BHNDVW3201B0CBC (Ch 1)	-83.0		Wed Oct 03 09:4...	00:02:45	1..3	E4:D5:3D:86:81:94	E4:D5:3D:86:81:94
BHNFACH (Ch 11)	-90.0		Wed Oct 03 09:5...	00:00:15	10..12	F0:7B:CB:05:AB:2F	F0:7B:CB:05:AB:2F
david 2008 (Ch 9)	-85.0		Wed Oct 03 09:4...	00:02:15	7..11	00:1E:E5:26:44:39	00:1E:E5:26:44:39
dlink (Ch 1)	-88.0		Wed Oct 03 09:5...	00:00:00	1..3	00:17:9A:4A:4A:A5	00:17:9A:4A:4A:A5
dlink (Ch 1)	-89.0		Wed Oct 03 09:5...	00:00:30	1..2	00:11:95:40:9C:A7	00:11:95:40:9C:A7
gabby (Ch 6)	-72.0		Wed Oct 03 09:5...	00:00:30	3..9	00:1A:70:6B:9F:B5	00:1A:70:6B:9F:B5
jag1212 (Ch 11)	-80.0		Wed Oct 03 09:5...	00:00:15	8..13	4C:0F:6E:8D:5B:FA	4C:0F:6E:8D:5B:FA
jerry's Wi-Fi Network (Ch 11)	-91.0		Wed Oct 03 09:5...	00:00:00	10..12	00:21:E9:B8:E5:FA	00:21:E9:B8:E5:FA
linksys (Ch 6)	-77.0		Wed Oct 03 09:5...	00:00:00	3..9	C0:C1:C0:A0:39:4E	C0:C1:C0:A0:39:4E
linksys (Ch 6)	-75.0		Wed Oct 03 09:5...	00:00:15	3..9	68:7F:74:71:60:01	68:7F:74:71:60:01
OnyxShark-guest (Ch 6)	-86.0		Wed Oct 03 09:4...	00:02:30	3..9	68:7F:74:B2:CF:E7	68:7F:74:B2:CF:E7
Station (Ch 11)	-80.0		Wed Oct 03 09:5...	00:01:00	8..13	00:22:3F:4E:74:44	00:22:3F:4E:74:44
WhiteMoose (Ch 1)	-79.0		Wed Oct 03 09:4...	00:03:45	1..3	20:AA:4B:04:83:B2	20:AA:4B:04:83:B2
WhiteMoose-guest (Ch 1)	-83.0		Wed Oct 03 09:4...	00:03:00	1..2	20:AA:4B:04:83:B4	20:AA:4B:04:83:B4
Yogibear (Ch 11)	-91.0		Wed Oct 03 09:5...	00:00:00	10..12	98:FC:11:54:77:04	98:FC:11:54:77:04

3.14 Site – LCFR 70

Devices: Currently Active, All Channels

Device *	Signal Strength (dBm)	Duty Cycle (%) * 1/2	Discovery Time	On Time	Channels Affected	Network ID	Device ID
Wi-Fi APs (In-Network) [16]							
(00:0B:85:5A:76:2F) (Ch 1)	-71.0		Thu Sep 27 09:44...	00:00:30	1..4	00:0B:85:5A:76:2F	00:0B:85:5A:76:2F
belkin.59b (Ch 11)	-74.0		Thu Sep 27 09:40...	00:05:15	9..13	08:86:3B:73:15:9B	08:86:3B:73:15:9B
belkin.59b.5GHz (Ch 149)	-85.0		Thu Sep 27 09:44...	00:01:00	149	08:86:3B:73:15:9D	08:86:3B:73:15:9D
Cisco5454 (Ch 11)	-84.0		Thu Sep 27 09:45...	00:00:15	9..13	44:58:29:7A:EA:98	44:58:29:7A:EA:98
Cisco5604 (Ch 1)	-72.0		Thu Sep 27 09:44...	00:00:45	1..4	BC:C8:10:AB:F6:E2	BC:C8:10:AB:F6:E2
Cisco6758 (Ch 11)	-86.0		Thu Sep 27 09:45...	00:00:00	9..13	00:02:6F:69:39:D4	00:02:6F:69:39:D4
Cisco7169 (Ch 9)	-82.0		Thu Sep 27 09:45...	00:00:15	6..12	A4:A2:4A:78:FA:...	A4:A2:4A:78:FA:...
Internet (Ch 6)	-78.0		Thu Sep 27 09:44...	00:00:45	3..9	CA:3D:C7:A3:AA:...	CA:3D:C7:A3:AA:...
InternetKids (Ch 6)	-78.0		Thu Sep 27 09:44...	00:00:45	3..9	CE:3D:C7:A3:AA:...	CE:3D:C7:A3:AA:...
Luca Maasen (Ch 1)	-85.0		Thu Sep 27 09:45...	00:00:00	1..3	00:24:01:6C:D8:A9	00:24:01:6C:D8:A9
Mitchell (Ch 11)	-87.0		Thu Sep 27 09:45...	00:00:00	9..13	20:AA:4B:76:AD:84	20:AA:4B:76:AD:84
NETGEAR86 (Ch 2)	-86.0		Thu Sep 27 09:45...	00:00:15	1..4	74:44:01:79:FE:1C	74:44:01:79:FE:1C
WELCOME (Ch 1)	-67.0		Thu Sep 27 09:37...	00:08:00	1..4	00:0B:85:5A:76:2E	00:0B:85:5A:76:2E
westell7234 (Ch 6)	-87.0		Thu Sep 27 09:45...	00:00:00	4..8	E0:46:9A:EA:E4:6D	E0:46:9A:EA:E4:6D
westell7870 (Ch 6)	-82.0		Thu Sep 27 09:44...	00:00:30	3..9	E0:46:9A:CF:02:9D	E0:46:9A:CF:02:9D
WLCBCC (Ch 1)	-77.0		Thu Sep 27 09:37...	00:08:00	1..4	00:0B:85:5A:76:2A	00:0B:85:5A:76:2A

5 GHz interference

Device	Channel
Belkin.59b.5GHz	149

3.15 Site – LCFR 71

Devices: Currently Active, All Channels							
Device *	Signal Strength (dBm)	Duty Cycle (%) * 1/2	Discovery Time	On Time	Channels Affected	Network ID	Device ID
<input type="checkbox"/> Cordless Phones [1]							
DECT-Like Base Station 2	-88.4	1	Thu Sep 27 11:38...	00:00:45	1	6D:00:49:26:15	
<input type="checkbox"/> Wi-Fi APs (In-Network) [3]							
Cisco4135 (Ch 1)	-68.0		Thu Sep 27 11:37...	00:01:15	1..4	44:58:29:75:7E:AE	44:58:29:75:7E:AE
NETGEAR (Ch 1)	-77.0		Thu Sep 27 11:31...	00:07:00	1..4	00:26:F2:73:6C:B8	00:26:F2:73:6C:B8
NoFreeNetForU (Ch 6)	-79.0		Thu Sep 27 11:37...	00:01:15	3..9	2C:B0:5D:1E:FE:28	2C:B0:5D:1E:FE:28

3.16 Site – LCFR 72

Devices: Currently Active, All Channels							
Device *	Signal Strength (dBm)	Duty Cycle (%) * 1/2	Discovery Time	On Time	Channels Affected	Network ID	Device ID
<input type="checkbox"/> Wi-Fi APs (In-Network) [12]							
(00:60:B3:2F:11:21) (Ch 1)	-87.0		Thu Sep 27 13:05...	00:00:00	1..3	00:60:B3:2F:11:21	00:60:B3:2F:11:21
Adriana (Ch 6)	-81.0		Thu Sep 27 13:04...	00:01:15	4..8	00:23:69:F6:77:D4	00:23:69:F6:77:D4
belkin.b5a (Ch 11)	-90.0		Thu Sep 27 13:05...	00:00:00	10..12	08:86:3B:AE:AB:5A	08:86:3B:AE:AB:5A
CenturylinkRLS (Ch 6)	-77.0		Thu Sep 27 13:01...	00:04:00	3..9	74:44:01:A5:1C:14	74:44:01:A5:1C:14
Cisco7285 (Ch 1)	-84.0		Thu Sep 27 13:04...	00:00:15	1..3	A4:A2:4A:7B:6C:70	A4:A2:4A:7B:6C:70
Cisco8042 (Ch 11)	-83.0		Thu Sep 27 13:05...	00:00:15	9..13	44:58:29:74:A1:5C	44:58:29:74:A1:5C
lelamery (Ch 1)	-88.0		Thu Sep 27 13:05...	00:00:00	1..3	00:26:F2:9C:37:78	00:26:F2:9C:37:78
Linksys (Ch 1)	-81.0		Thu Sep 27 13:01...	00:03:30	1..3	00:1C:10:54:B0:62	00:1C:10:54:B0:62
MiFi4620L Jetpack BBF3 Sec...	-64.0		Thu Sep 27 12:55...	00:09:45	1..5	00:15:FF:1C:BB:F3	00:15:FF:1C:BB:F3
THENETWORK (Ch 5)	-77.0		Thu Sep 27 13:05...	00:00:15	3..7	1C:AF:F7:DC:87:6B	1C:AF:F7:DC:87:6B
westell4557 (Ch 6)	-74.0		Thu Sep 27 13:05...	00:00:00	3..9	0C:D5:02:78:61:10	0C:D5:02:78:61:10
westell9632 (Ch 6)	-89.0		Thu Sep 27 13:05...	00:00:00	5..7	0C:D5:02:0E:A4:72	0C:D5:02:0E:A4:72

3.17 Site – LCFR 76

Devices: Last Day, All Channels							
Device *	Signal Strength (dBm)	Duty Cycle (%) * 1/2	Discovery Time	On Time	Channels Affected	Network ID	Device ID
<input type="checkbox"/> Generic - Continuous [2]							
Device (CW) @ 5640.00 MHz	-86.0	87	Thu Oct 04 13:59...	00:01:47 (Down)	128		
Device (CW) @ 5640.00 MHz	-86.3	86	Thu Oct 04 14:01...	00:00:32 (Down)	128		
<input type="checkbox"/> Wi-Fi APs (In-Network) [2]							
ALIENWARE-HP_Network (C...	-86.0		Thu Oct 04 13:57...	00:07:15	1..3	00:18:E7:8C:53:68	00:18:E7:8C:53:68
ALIENWARE-HP_Network (C...	-86.0		Thu Oct 04 14:02...	00:00:19 (Down)	34..38	00:18:E7:8C:53:6A	00:18:E7:8C:53:6A

5 GHz interference	
Device	Channel
Device(CW)	128
Device(CW)	128
ALIENWARE-HP_Network	34-38
ALIENWARE-HP_Network	34-38

3.18 Site – LCFR 77

Devices: Currently Active, All Channels							
Device *	Signal Strength (dBm)	Duty Cycle (%) * ↕	Discovery Time	On Time	Channels Affected	Network ID	Device ID
[-] Wi-Fi APs (In-Network) [6]							
JadeMonkey (Ch 6)	-82.0		Thu Oct 04 12:44...	00:01:45	3..9	58:6D:8F:17:12:CF	58:6D:8F:17:12:CF
JadeMonkey-guest (Ch 6)	-80.0		Thu Oct 04 12:44...	00:01:45	3..9	58:6D:8F:17:12:D1	58:6D:8F:17:12:D1
judy patz (Ch 11)	-91.0		Thu Oct 04 12:45...	00:00:00	10..12	00:1E:2A:77:86:D8	00:1E:2A:77:86:D8
MOTOROLA-36B0B (Ch 1)	-66.0		Thu Oct 04 12:39...	00:06:45	1..4	CC:7D:37:EC:8D...	CC:7D:37:EC:8D...
westell3237 (Ch 6)	-87.0		Thu Oct 04 12:45...	00:00:00	4..8	0C:D5:02:42:25:69	0C:D5:02:42:25:69
westell8349 (Ch 6)	-74.0		Thu Oct 04 12:39...	00:06:45	4..8	0C:D5:02:8C:B3:AB	0C:D5:02:8C:B3:AB

3.19 Site – LCFR 78

Devices: Currently Active, All Channels							
Device *	Signal Strength (dBm)	Duty Cycle (%) * ↕	Discovery Time	On Time	Channels Affected	Network ID	Device ID
[-] Wi-Fi APs (In-Network) [3]							
Dolores (Ch 1)	-85.0		Tue Oct 02 15:44...	00:05:15	1..3	00:18:F8:3B:57:E3	00:18:F8:3B:57:E3
WELCOME (Ch 11)	-88.0		Tue Oct 02 15:39...	00:09:45	8..13	00:0B:85:2C:51:2E	00:0B:85:2C:51:2E
WLCBCC (Ch 11)	-89.0		Tue Oct 02 15:47...	00:01:45	9..13	00:0B:85:2C:51:2A	00:0B:85:2C:51:2A

3.20 Site – LCFR 82

No source of interference where detected at this site.

Devices: Last Day, All Channels							
Device *	Signal Strength (dBm)	Duty Cycle (%) * ↕	Discovery Time	On Time	Channels Affected	Network ID	Device ID
Waiting for devices...							

3.21 Site – LCFR 83

Devices: Currently Active, All Channels							
Device *	Signal Strength (dBm)	Duty Cycle (%) * √	Discovery Time	On Time	Channels Affected	Network ID	Device ID
Generic - Continuous [1]							
Device (CW) @ 5640.00 MHz	-85.5	90	Thu Oct 04 12:17...	00:02:45	128		
Wi-Fi APs (In-Network) [1]							
karen (Ch 6)	-74.0		Thu Oct 04 12:14...	00:06:30	3..9	00:14:BF:05:CC:D3	00:14:BF:05:CC:D3

5 GHz interference	
Device	Channel
Device(CW)	128

3.22 Site – LCFR 109

Devices: Currently Active, All Channels							
Device *	Signal Strength (dBm)	Duty Cycle (%) * √	Discovery Time	On Time	Channels Affected	Network ID	Device ID
Bluetooth [1]							
Bluetooth Paging/Inquiry De...	-64.3		Thu Oct 04 10:35...	00:12:00	N/A	43:74:DA	
Wi-Fi APs (In-Network) [3]							
BHNDW36115DD0 (Ch 1)	-88.0		Thu Oct 04 10:47...	00:00:15	1..3	E4:D5:3D:09:49:AF	E4:D5:3D:09:49:AF
Cisco4756 (Ch 11)	-90.0		Thu Oct 04 10:47...	00:00:15	10..12	44:58:29:76:02:34	44:58:29:76:02:34
linksys (Ch 6)	-88.0		Thu Oct 04 10:47...	00:00:15	4..8	00:1A:70:D1:65:66	00:1A:70:D1:65:66

3.23 Site – LCFR 110

Devices: Last Day, All Channels							
Device *	Signal Strength (dBm)	Duty Cycle (%) * √	Discovery Time	On Time	Channels Affected	Network ID	Device ID
Bluetooth [1]							
Bluetooth Paging/Inquiry De...	-45.6		Thu Oct 04 10:08...	00:01:05 (Down)	N/A	9E:8B:33	
Wi-Fi Ad Hocs [1]							
LO56 (Ch 1)	-80.0		Thu Oct 04 10:10...	00:01:14 (Down)	1..4	02:2C:9C:EB:23:EB	02:2C:9C:EB:23:EB
Wi-Fi APs (In-Network) [9]							
AirMaxInternet.com (Ch 1)	-91.0		Thu Oct 04 10:13...	00:00:00	1..2	00:27:22:28:89:C8	00:27:22:28:89:C8
NETGEAR (Ch 1)	-88.0		Thu Oct 04 10:13...	00:00:37 (Down)	1..3	E0:46:9A:2D:79:EE	E0:46:9A:2D:79:EE
NETGEAR (Ch 1)	-89.0		Thu Oct 04 10:12...	00:00:18 (Down)	1..2	E0:46:9A:2D:79:EE	E0:46:9A:2D:79:EE
NETGEAR31 (Ch 1)	-91.0		Thu Oct 04 10:13...	00:00:18 (Down)	1..2	20:4E:7F:31:E2:42	20:4E:7F:31:E2:42
NETGEAR31 (Ch 1)	-84.0		Thu Oct 04 10:11...	00:00:19 (Down)	1..3	20:4E:7F:31:E2:42	20:4E:7F:31:E2:42
NETGEAR31 (Ch 1)	-84.0		Thu Oct 04 10:11...	00:00:19 (Down)	1..3	20:4E:7F:31:E2:42	20:4E:7F:31:E2:42
westell6197 (Ch 6)	-87.0		Thu Oct 04 10:13...	00:00:00	4..8	74:44:01:AD:CB:85	74:44:01:AD:CB:85
westell6197 (Ch 6)	-87.0		Thu Oct 04 10:11...	00:02:30 (Down)	4..8	74:44:01:AD:CB:85	74:44:01:AD:CB:85
westell6267 (Ch 6)	-89.0		Thu Oct 04 10:12...	00:00:19 (Down)	5..7	0C:D5:02:5A:53:7B	0C:D5:02:5A:53:7B

3.24 Site – LCFR 111

Devices: Last Day, All Channels							
Device *	Signal Strength (dBm)	Duty Cycle (%) * 1/2	Discovery Time	On Time	Channels Affected	Network ID	Device ID
Bluetooth [1]							
Bluetooth Paging/Inquiry De...	-50.7		Thu Oct 04 09:35...	00:02:22 (Down)	N/A	9E:8B:33	
Wi-Fi Ad Hocs [4]							
hpsetup (Ch 6)	-76.0		Thu Oct 04 09:37...	00:05:15	4..8	36:A9:05:0D:8E:E6	36:A9:05:0D:8E:E6
hpsetup (Ch 6)	-84.0		Thu Oct 04 09:36...	00:00:28 (Down)	4..8	36:A9:05:0D:8E:E6	36:A9:05:0D:8E:E6
hpsetup (Ch 6)	-85.0		Thu Oct 04 09:35...	00:00:47 (Down)	4..8	36:A9:05:0D:8E:E6	36:A9:05:0D:8E:E6
hpsetup (Ch 6)	-84.0		Thu Oct 04 09:34...	00:00:18 (Down)	4..8	36:A9:05:0D:8E:E6	36:A9:05:0D:8E:E6
Wi-Fi APs (In-Network) [3]							
linksys (Ch 6)	-87.0		Thu Oct 04 09:38...	00:03:45	5..7	00:12:17:DA:AA:...	00:12:17:DA:AA:...
linksys (Ch 6)	-87.0		Thu Oct 04 09:37...	00:01:24 (Down)	5..7	00:12:17:DA:AA:...	00:12:17:DA:AA:...
linksys (Ch 6)	-87.0		Thu Oct 04 09:35...	00:00:19 (Down)	4..8	00:12:17:DA:AA:...	00:12:17:DA:AA:...

3.25 Site – Gun Range

No sources of interference where detected at this site.

Devices: Last Day, All Channels							
Device *	Signal Strength (dBm)	Duty Cycle (%) * 1/2	Discovery Time	On Time	Channels Affected	Network ID	Device ID
Waiting for devices...							

4.0 OUTDOOR WIRELESS COVERAGE

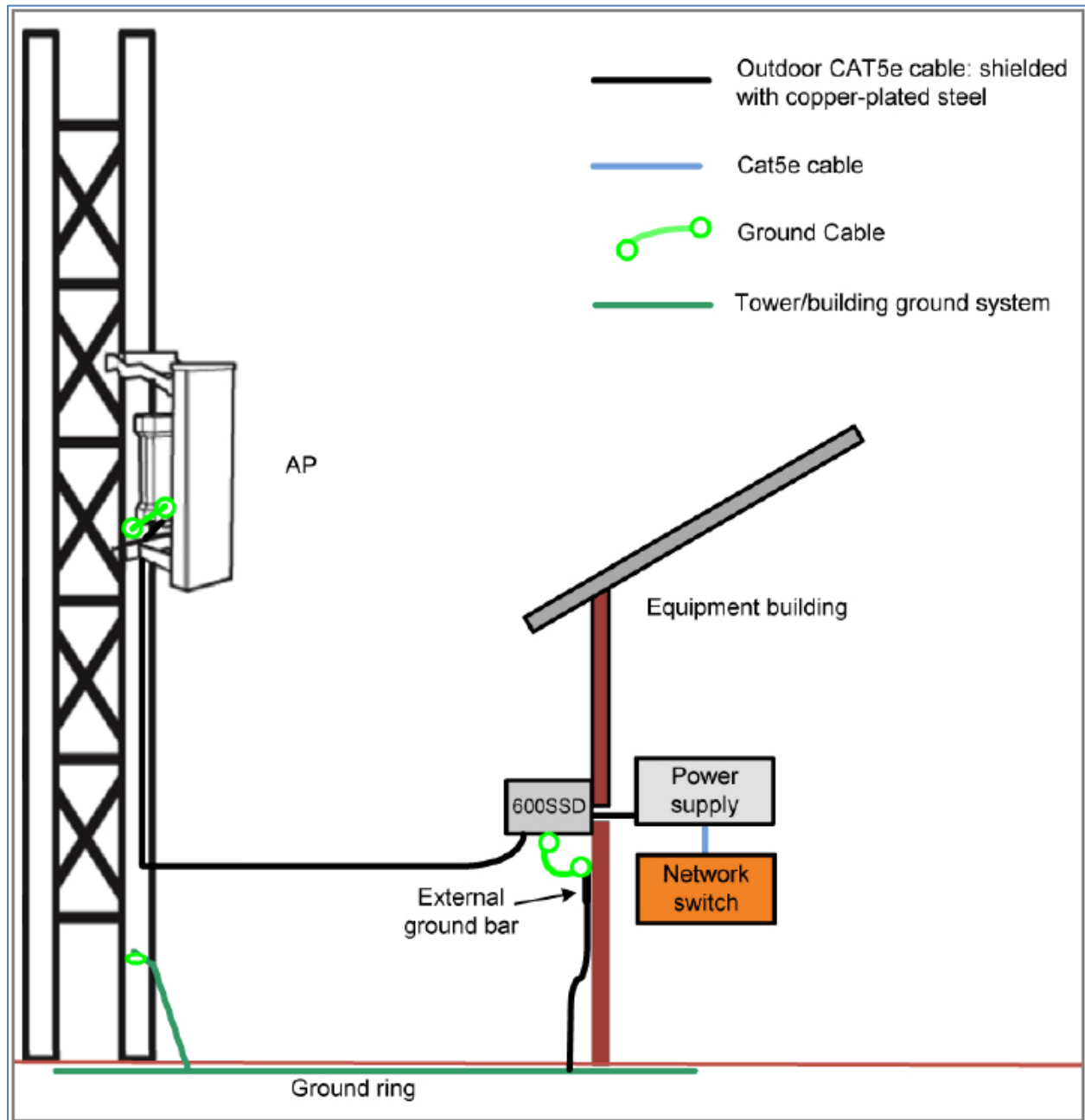
The following site will also require outdoor wireless coverage. The recommended access point to provide coverage is the Motorola 7181 series access point. This is to provide additional outdoor coverage for wireless clients and devices.

- Gun Range
- Radio Shop

Part Number	Description	Qty
HK1860A	AP-7181 802.11n AC Power	2
5871322H01	MotoMesh Duo US Power Adp	2
HKLN4446A	AP-7181 Sunshield	2
RLN6197A	AP7181 Mnt kit pole adp	2
RLN6199A	AP7181 Mnt kit wall adp	2
RLN6198A	AP7181 Mnt kit Gooseneck	2
HKVN4033A	AP7181 1yr Ext Warr	2
HKLN4445A	AP7181 Antenna Hardware	2
RVN5204B	CAMBIUM Wireless Manager Base Software	1
RVN5208B	MOTOROLA Wireless Manager Software	1
RVN5215A	MOTOMESH Duo Management Base WM	1

5.0 GROUNDING METHODS

The following section provides illustrations showing proper mounting and grounding techniques for tower installations.



6.0 BILL OF MATERIALS

Below is a list of the hardware required for each remote and tower site. Items such as outdoor rated CaT6 cable, grounding cable and weatherproofing material will be provided directly for installation crews.

Tower site:

Part Number	Description	Qty
C054045A002A	PMP 450 Connectorized Access point	19
85009325001	60 Degree Sector Antenna (H+V OFDM, FSK Input)	19
30009406002	N-Type t N-Type Cable (16 inch length)	57
ACPS120WA	CMM4 Power supply	9
600SSD	Surge Suppressor	38
1091AA	CMM4 with Ruggedized Switch and GPS outdoor Enclosure	9
C000045K001A	PMP interoperability License Key	19
SG00TS4017A	PMP450 Extended Warranty, 2 Additional years	19

Remote sites:

Part Number	Description	Qty
CO54045C002A	PMP 450 Subscriber Module, 10 Mbps	25
ACPSSW-09B	Power Supply	25
HK2022A	Reflector Dish kit	7
600SSD	Surge Suppressor	50
SMMB1A	Universal Mounting Kit	25
SG00TS4018A	PMP 450 SM extended Warranty, 2 additional Years	25
55' Mounting post	Hapco 55' pole provided by Besco Electric*	11
89' Mounting post	Durastress Concrete 89' pole*	13

**Recommended vendor for outdoor mounting poles.*

7.0 HARDWARE SPECIFICATIONS

Below are the details for the Motorola PMP 450 series antenna.

PMP 450 ACCESS POINT	
Model Numbers	C054045A001A, C054045A002A
SPECTRUM	
Frequency Range	5470 - 5875 MHz
Channel Width	10 MHz (OFDM-only mode) or 20 MHz
Channel Spacing	10 and 20 MHz Channels: Configurable in 5 MHz increments
INTERFACE:	
Physical Layer	2x2 MIMO OFDM, FSK
MAC Layer	Cambium proprietary
Ethernet Interface	10/100 BaseT; half/full duplex; rate auto-negotiated (802.3 compliant)
Protocols Used	IPv4, UDP, TCP, IP, ICMP, Telnet, SNMP, HTTP, FTP
Network Management	HTTP, Telnet, FTP, SNMP v2c
VLAN	802.1ad (DVLAN Q-in-Q), 802.1Q with 802.1p priority, dynamic port VID

PERFORMANCE:	
Subscribers Per Sector	Up to 200
ARQ	Yes
Nominal Receive Sensitivity (w/FEC) @ 10 MHz Channel	OFDM: 2X = -83, 4X = -77, 6X = -69
Nominal Receive Sensitivity (w/FEC) @ 20 MHz Channel	OFDM: 2X = -80, 4X = -74, 6X = -66 FSK: 1X = -85, 2X = -80
Maximum Deployment Range	Up to 20 miles
Modulation Levels (Adaptive)	OFDM: 2X = QPSK, 4X = 16QAM, 6X = 64QAM (MIMO-B) FSK: 1X = 2-Level FSK, 2X = 4-Level FSK
Latency	3 to 5 ms
GPS Synchronization	Yes, via CMM3, CMM4, or UGPS
Quality of Service	DiffServ QoS
LINK BUDGET:	
Antenna Beam Width	60° sectors (H+V+FSK patch) or 90° sectors are available
Transmit Power	OFDM: -30 to +22 dBm (combined, to EIRP limit by region); 1 dB interval FSK: -30 to +23 dBm (1 dB interval)
Antenna Gain	17 dBi H+V, 9 dBi FSK patch (with 60° sector antenna) 17 dBi H+V (with 90° sector antenna)
Maximum Transmit Power	22 dBm combined OFDM, 23 dBm FSK

PHYSICAL:	
Wind survival	118 mph (190 kph)
Antenna Connection	50 ohm, N-type (Dual Polarization OFDM), FSK V-Pol
Mean Time Between Failure (MTBF)	> 40 years
Environmental	IP67
Temperature	-40° F to +131° F (-40° C to +55° C)
Weight	13 lbs (5.9 kg) with antenna 5.5 lbs (2.5 kg) without antenna
Wind Loading	90 lb (173 N)
Dimensions (HxWxD)	Radio: 10.6" x 8.3" x 2.8" (27 x 21 x 7 cm) Antenna: 20.2" x 5.1" x 2.9" (51 x 13 x 7.3 cm)
Maximum Power Consumption	18 W
Input Voltage	24 to 30 V
SECURITY:	
Encryption	56-bit DES; 128-bit AES
CERTIFICATIONS:	
FCC ID	Z8H89FT0002 (5.4 GHz grant in future release)
CE	TBD
IC Certificate	109W-0002

7.1 Motorola AP 7181 Specifications

<p>Radio Features</p> <p>802.11 b/g/n Radio</p> <p>Operating Frequency: 2.4-2.462 GHz</p> <p>Modulations:</p> <ul style="list-style-type: none"> • Orthogonal Frequency Division Multiplexing (OFDM) • (BPSK, QPSK, 16-QAM, 64-QAM) • 802.11b – DSS (BPSK, QPSK, CCK) <p>3x3 MIMO with 2 Data Streams</p> <p>Supported Channels: 20 and 40 MHz</p> <p>Maximum Transmit Power: 36 dBm EIRP*</p> <p>Settable in 1 dB increments</p> <p>Receiver Sensitivity</p> <ul style="list-style-type: none"> • 802.11g 2.4 GHz: -78 dBm @ 54 Mbps to -89 dBm @ 6 Mbps • 802.11n 2.4 GHz: -70 dBm @ MCS 15 to -80 dBm @ MCS0 	<p>Hardware Specifications</p> <p>AC Option: 100 – 240 VAC at 47-63 Hz</p> <p>AC Power Consumption: 84 Watts Average, 126 Watts Peak</p> <p>DC Option: 48 VDC</p> <p>DC Power Consumption: 66 Watts Average, 99 Watts Peak</p> <p>Ethernet Ports:</p> <ul style="list-style-type: none"> • 2 ports auto sensing 10/100/1000 Base-T Ethernet • RJ45 Console port • Integrated 802.3af PoE out <p>Hardware reset button</p> <p>Network status LEDs</p> <p>Dimensions: (height x diameter at widest point): 15.35" x 14" (39cm x 35.5cm)</p> <p>Weight: 39 pounds (17.7 kilograms)</p>	<p>Software Features</p> <ul style="list-style-type: none"> • 16 WLANs • Multi-Radio mesh routing • 802.11e QoS • 4 BSSIDs per radio • On demand channel scan • Auto channel select • Frame aggregation • WEB-based GUI for local configuration • Ethernet filters
<p>802.11 a/n Radio</p> <p>Operating Frequency: 5.470-5.865 GHz (ETSI/EU), 5.725-5.850 GHz (FCC/IC)</p> <p>Modulations:</p> <ul style="list-style-type: none"> • Orthogonal Frequency Division Multiplexing (OFDM) • (BPSK, QPSK, 16-QAM, 64-QAM) <p>3x3 MIMO with 2 Data Streams</p> <p>Supported Channels: 20 and 40 MHz</p> <p>Maximum Transmit Power: 32 dBm EIRP</p> <p>Settable in 1 dB increments</p> <p>Receiver Sensitivity</p> <ul style="list-style-type: none"> • 802.11a 5.x GHz: -72 dBm @ 54 Mbps to -89 dBm @ 6 Mbps • 802.11n 5.x GHz: -63 dBm @ MCS15 to -88 dBm @ MCS0 <p>DFS Support:</p> <p>ETSI EN 301 893 v1.5.1 for 5.4 GHz</p> <p>ETSI EN 302 502 v1.2.1 for 5.8 GHz</p>	<p>Environmental Specifications</p> <p>Operating: -40 to +55 °C</p> <p>Storage: -40 to +85 °C</p> <p>Humidity: 5 to 95 % RH non-condensing</p> <p>Enclosure:</p> <ul style="list-style-type: none"> • IP67 rated, corrosion resistant enclosure • ASTM B117 salt, fog, and rust resistance <p>Wind Ratings: Wind survivability > 160 Mph</p> <p>Operational Shock: MIL-STD-516.5 Procedure</p> <p>Operational Vibration: MIL-STD-810F method 514.5A Procedure</p>	<p>Management</p> <p>One Point Wireless Manager</p> <ul style="list-style-type: none"> • Device discovery • Inventory management • Alarm/event management • Google Maps network view • Over-the-air upgrades • Fault, Configuration, Administration, Performance and Security (FCAPS) <p>BroadbandPlanner</p> <ul style="list-style-type: none"> • Performance prediction tools • Streamline mesh deployments
<p>Antenna Specifications</p> <p>Advanced Element Panel Technology (ADEPT)</p> <ul style="list-style-type: none"> • Integrated 2.4/5.x GHz antenna system • Dual polarization • Software configurable down tilt antennas • Optional remote mounted panel antennas <p><small>*Transmit power may vary based upon the deployed country.</small></p>	<p>Routing Protocol</p> <p>MeshConnex™</p> <ul style="list-style-type: none"> • Layer 2 based routing providing greater performance and less overhead • Multi-Radio mesh allows meshing on each radio • Automatic neighbor detection and route determination • Self-healing enabled by dynamic path selection <p>Security</p> <p>Client Security: WPA, WPA2-PSK, WEP, 802.11i, RADIUS, 802.1X (includes EAP-TLS, EAP-TTLS)</p> <p>Encryption: WEP, AES-CCM, TKIP</p> <p>Intra-Mesh Encryption: Secure Mesh with AES</p> <p>Authentication: 802.1x (Infrastructure/Client) and MAC address hardware authentication</p>	<p>Approvals</p> <p>FCC CFR 47 Part 15, Class B Subpart C</p> <p>Industry Canada RSS 210</p> <p>UL 60950-1, -22</p> <p>CE</p> <p>EN 301 489-17</p> <p>EN 300 328</p> <p>EN 302 502 v1.2.1</p> <p>EN 301 893 v1.5.1 DFS</p> <p>CB – IEC 60950-1, -22</p> <p>RoHS/WEEE, EPP, CMM</p> <p>Optional Accessories</p> <p>Optional mounting kits</p> <p>Optional remote mounted panel antennas</p> <p>Street light power tap adaptor</p> <p>US, EU, DC power cables</p> <p>Warranty</p> <p>One (1) year on hardware, parts and software</p>

8.0 CONCLUSION

Presidio Networked Solutions would like to thank the Lake County Board of County Commissioners for the opportunity to work with you on this portion of your wireless project. It is our sincere wish that you are completely satisfied with the final product and look forward to working with you again.